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**TEACHER SELF-EFFICACY AND IMPLICIT THEORIES OF
INTELLIGENCE: IMPLICATIONS FOR NOVICE TEACHER RETENTION**

A Dissertation

Presented to

The Faculty of the School of Education

The College of William and Mary in Virginia

In Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

by

Linda E. Feldstein

January 2017

**TEACHER SELF-EFFICACY AND IMPLICIT THEORIES
OF INTELLIGENCE:
IMPLICATIONS FOR NOVICE TEACHER RETENTION**

by

Linda E. Feldstein

Approved January 2017 by

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Dedication

This dissertation would not have been possible without the abiding, ever-present support, and loving of my husband, Andrew. You have always had faith, and believed in me with unflagging spirit and enduring confidence. Together we will continue down this path of curiosity and wonder, of perseverance and courage, and most importantly, of complete and utter faith in the power of our shared joy.

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Abstract

This is a study about the beliefs novice teachers hold about their own self-efficacy for teaching, their personal implicit theories of intelligence, and the influence those beliefs might have on new teachers' intentions to remain in the teaching profession. The theoretical framework incorporates three elements: self-efficacy for teaching, implicit theory of intelligence, and intent to remain in the teaching profession. Using person centered analysis, I examined the ways in which teacher self-efficacy interacted with implicit theories of intelligence and how those beliefs may be related to novice teachers' intent to remain in the profession. Cluster analysis identified profiles of teaching self-efficacy and implicit theories of intelligence in novice teachers, and ANOVA results suggest that teachers scoring in the higher ranges of self-efficacy for teaching and displaying a more incremental theory of intelligence report that they are more likely to remain in the teaching profession as their long-term career. Results are discussed as possible avenues for improving novice teacher retention in the U.S.

**TEACHER SELF-EFFICACY AND IMPLICIT THEORIES OF
INTELLIGENCE: IMPLICATIONS FOR NOVICE TEACHER RETENTION**

Chapter One: Introduction

This is a study about the beliefs novice teachers hold about their own self-efficacy for teaching and their personal implicit theories of intelligence, and the influence those combined beliefs might exert on new teachers' intentions to remain in the teaching profession. Researchers have found teacher beliefs to be an important determinant of novice teacher retention, and teacher retention is critical to strengthening overall teaching quality and improving student achievement in the U.S. (e.g., Hanushek, 2010; Hoy & Woolfolk-Hoy, 1993; Hughes, 2012; Ladd, 2011; Ronfeldt, Loeb, & Wyckoff, 2013). Every year, roughly 190,000 newly minted teachers graduate from their teacher preparation programs excited to join the ranks of public school teachers in every state of the nation (Pomerance, Greenberg, & Walsh, 2016). New teachers enter the profession full of hope and altruism, determined to be the best teachers they possibly can be. However, the realities of day to day teaching practice can be a shock to many new graduates as they realize the level of demand and rapid skill acquisition most teaching assignments require (Anderson & Stillman, 2012). Within their first five years of teaching up to 50% will leave the profession (Education Commission of the States, 2005; Ingersoll, 2001; Ingersoll & Merrill, 2010; Smith & Ingersoll, 2004). Retention rates are particularly poor in under-resourced schools with a history of low achievement (Petty, Fitchett, & O'Connor, 2012).

These novice teachers may be guided by their implicit beliefs about their personal teaching ability in ways that are deeply influential but often unexamined (Fives & Buehl, 2008). These beliefs, operating just below conscious awareness, can lead teachers to make assumptions and decisions about the nature of their teaching knowledge and ability. Currently there is little research examining these influential underlying beliefs (Fives & Buehl, 2008). Improving retention and development of novice teachers through the early years of their careers remains one of education's critical tasks (New Teacher Center at the University of California at Santa Cruz, 2007). Exploring the nature and impact of these beliefs about their teaching self-efficacy and the nature of their own intelligence could play a pivotal role in understanding novice teachers' needs (Pajares, 1992).

Problem Statement

Retaining quality teachers is critical to reducing teacher shortages, improving classroom instruction, and increasing student achievement (Bennett, Brown, Kirby-Smith, & Severson, 2012; Brown & Wynn, 2009). High rates of teacher turnover disproportionately affect urban and rural low-achieving schools, and hence also have the greatest impact on the achievement of our nation's most vulnerable and needy population of students (Boyd, Lankford, Loeb, & Wyckoff, 2005; Education Commission of the States, 2005). Teacher effectiveness increases as novice teachers gain experience, especially during the first three to five years of teaching (Hanushek, 2010; Staiger & Rockoff, 2010). Student achievement is dependent on high levels of teacher quality, so much so that no other measure of student success is as predictive as teacher quality (Hanushek, 2010). Attrition during these formative years of accruing teaching skill means students are more frequently taught by inexperienced novice teachers (Goldrick, Osta,

Barlin, & Burn, 2012). This loss to the profession has profound implications for an education system that has struggled with issues related to international comparisons, high-stakes testing, and teacher quality (Boyd et al., 2005).

The impact of teacher turnover is felt in other ways as well. For large school districts, the cost of turnover can reach millions of dollars each year, and incur spending that might otherwise be allocated for improving infrastructure or purchasing instructional materials and equipment (Borman & Dowling, 2008; National Commission on Teaching and America's Future, 2007; Carroll & Foster, 2010). Additionally, administrators must devote a great deal of their time and energy to the recruitment and hiring process, draining much-needed human resources away from retention activities and capacity development (Brown & Wynn, 2009).

Theoretical Framework

The theoretical framework proposed for this study incorporates three elements: teacher self-efficacy, implicit theory of intelligence, and intent to remain in the teaching profession. The purpose of this study is to identify naturally occurring clusters of teachers based on their individual beliefs about their own self-efficacy for teaching and the nature of their intelligence, and then to explore whether those clusters are related to those same novice teachers' plans to stay in the teaching profession.

Teacher Self-Efficacy

One of the lenses through which to view teacher skill development and persistence is teacher self-efficacy (Grant, 2006; Hoy & Spero, 2005; Tschannen-Moran & Hoy, 2007). Bandura (1997) defined self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3).

This belief influences the amount of effort individuals will put forth, how long they will persist in the face of challenges, their resilience, whether they will use constructive or destructive thought patterns, and levels of stress and depression experienced. Tschannen-Moran and Woolfolk-Hoy (2001) defined *teacher* self-efficacy as “a judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated” (p. 783).

Implicit Theory of Intelligence

Another viewpoint for understanding the development and persistence of novice teachers is Dweck’s (2000, 2007) theory of implicit conceptualizations of intelligence. Dweck (2000) focuses on two perspectives an individual might hold for understanding their intelligence; an “entity” theory that intelligence is a fixed, immutable trait, and an “incremental” theory that intelligence is malleable and can be cultivated through learning and effort. Entity theorists tend to seek out “easy, low-effort successes” (Dweck, 2000, p. 3), in order to outperform others and preserve their feeling of being smart. Incremental theorists tend to seek out challenges and difficult tasks, and remain persistent, believing they can increase learning through their effort. These two differing attributions have been shown to be instrumental mediators of adaptive behavior when individuals are faced with challenging situations (Hong, Chiu, Dweck, Lin, & Wan, 1999). Most novice teachers would admit to experiencing challenges in the early years of their careers, so uncovering the implicit theory they hold for their intelligence could prove instrumental.

Intent to Stay

Feeling committed to and satisfied with their career path can encourage teachers to remain in teaching. Teachers who report higher levels of job satisfaction are more

likely to report their intent to remain in the profession until retirement (Beebe, 2013; Hughes, 2012). Klassen and Chiu (2010) found that teachers with higher levels of self-efficacy for teaching, especially in the areas of classroom management and instructional strategies, reported increased levels of job satisfaction.

In this study, I will explore the ways in which teacher self-efficacy may interact with implicit theories of intelligence, and how those beliefs may be related to novice teachers' intent to remain committed to the profession and develop the skills needed to become highly effective teachers. Viewed through the theoretical lenses of self-efficacy for teaching and implicit theories of intelligence, individual teacher characteristics may emerge as facets of a more complex dynamic system, "involving the many interacting factors at different levels of aggregation and transcending disciplinary boundaries" (Bergman, Magnusson, & El-Khoury, 2003, p. 1). Bandura (1997) stated, "Construal of low attainments as indicants of inherent personal deficiencies erodes a sense of efficacy, whereas construal of the same low attainments as instructive guides for enhancing personal competencies sustains it" (p. 118). The belief that skills and competencies are acquirable fosters a task-diagnostic thought pattern that can expand the ability to persist and to master challenging situations (Bandura, 2002). Investigating the interactional effects of these two frameworks and their relationship to teachers' intent to remain in the teaching profession may lead to an increased understanding of novice teacher development, and perhaps encourage the idea that great teachers are not just born that way, rather with time and experience, they mature and develop into skilled, effective, and committed teachers.

Research Design and Research Questions

Using person-centered cluster analysis (Bergman et al., 2003), I will be investigating the naturally occurring combinations of variables from both teacher self-efficacy and implicit theories that cluster to form individual profiles of teacher characteristics (Chen, 2012). Person-oriented analysis assumes that single points on a dimension of behavior derive significance from their position in relation to other data points for the same individual (Magnusson, 2003). Specifically, using survey data, I will aggregate information about the various profiles of both self-efficacy for teaching and implicit theories of intelligence beliefs that beginning teachers hold about themselves. Second, I will be seeking to better understand whether specific profiles predict intent to remain in the teaching profession. Last, data will be explored to find whether certain profiles tend to include an over-representation or under-representation of certain demographic characteristics like gender or teaching context.

The following research questions and hypotheses will guide this investigation:

RQ1. What novice teacher profiles emerge from cluster analysis using the variables of self-efficacy for teaching and implicit theory of intelligence?

Since the constructs of self-efficacy for teaching and implicit theories of intelligence are measured along what is essentially a continuum (self-efficacy for teaching: high to low; implicit theories: entity theorist to incremental theorist) there exists the possibility for a broad range of profiles. I hypothesized that there might be four general groups, based on the idea that novice teachers might fall on either a high end of each continuum, or the low end of each continuum. Those groups would be:

- high self-efficacy for teaching/entity theory of intelligence,
- high self-efficacy for teaching/incremental theory of intelligence,
- low self-efficacy for teaching/entity theory of intelligence, and
- low self-efficacy for teaching/incremental theory of intelligence.

Since a fundamental component of the clustering techniques being used in this study is the grouping of individuals based on their patterns of characteristics (Bergman & El-Khoury, 2003), this hypothesized breakdown will entail making decisions based on both theory and detailed analysis of the data.

RQ2. To what extent do these profiles of novice teacher characteristics predict intent to remain in the teaching profession? Wang, Hall, and Rahimi (2015) found that teachers' self-efficacy for teaching directly predicted both teachers' psychological health, and their intention to remain in the profession. For this reason, it is hypothesized that the teachers who report the strongest sense of self-efficacy for teaching combined with the more adaptive incremental theory of intelligence would likely also be those reporting the strongest intention to remain in the education profession.

RQ3. Are certain profiles over-represented or under-represented by the demographic categories of gender, race, teaching level, subject area, school setting, or estimated SES of students? Watt and Richardson (2008) found significant demographic differences in their cluster analysis study of teachers in the areas of age, family background, and English language proficiency. Typically, teacher turnover rates are highest among schools

with high levels of poverty and low levels of student achievement (Simon & Johnson, 2015). This led me to wonder whether teachers with certain demographic characteristics might be concentrated in, for instance, low or high SES schools, or urban, suburban, or rural schools. Brown and Wynn (2009) noted higher attrition rates among urban teachers, leading to the hypothesis that teachers from specific demographic groups might be less likely to persist in the profession past the five year mark, especially those tasked with teaching in schools with either urban or rural settings, or those with the highest rates of poverty among students.

Significance of Study

This study will contribute to the knowledge base of the teaching profession through increased awareness of teacher profiles, which may provide information relevant to the understanding of the development of novice teachers. The potential value of this research lies in the ability to inform programs and policies aimed at retaining novice teachers. Across U.S., novice teachers make up an estimated average of 9.3% of the teaching force (Gagnon & Mattingly, 2014). School districts with the highest percentage of novice teachers tend to be those in poor urban or rural areas. Gagnon and Mattingly found that both the percentage of students living in poverty and the proportion of minority students in a district served as predictors of an increased percentage of novice teachers. These schools struggle to close the achievement gap because they are constantly working to stabilize their work force and encourage teachers to stay long enough to build the skills needed to increase their effectiveness in the classroom (Brown & Wynn, 2009; Gagnon & Mattingly, 2014; Ingersoll, 2001; Sutchter, Darling-Hammond,

& Carver-Thomas, 2016). Lowering attrition rates can mean teachers stay longer and have more time to develop instructional skill and experience, which can increase their effectiveness with students and reduce overall turnover costs (Ingersoll, Merrill, & May, 2012; Krieg, 2006 Loeb, Darling-Hammond, & Luczak, 2005).

Novice teachers' varied beliefs about their personal teaching capacity and the nature and origin of the ability to teach may have profound effects on the development of their own teaching practice (Fives & Buehl, 2008). Fives and Buehl (2008) suggest future research might assist in better understanding teacher development so that novice teachers could, for example, be paired with mentors who provide support or modeling for adaptive beliefs about teaching or professional development could be targeted to support novice teachers in realizing the connection of beliefs to practice.

Chapter Two: Review of Related Literature

Developing and retaining talented, high quality teachers remains a challenge in the U.S. (Algozzine, Gretes, Queen, & Cowan-Hathcock, 2011; Bennet et al., 2013; Chapman, 1984; Schaefer, Long, & Clandinin, 2012; Shaw & Newton, 2014).

Researchers have shown that effective teachers can increase student achievement, and that during the first three years of teaching effectiveness grows with each year of classroom experience (Hanushek, 2010; Rivkin, Hanushek, & Kain, 2005; Ronfeldt et al., 2013). These early years are a developmental period during which many novice teachers make great gains in teaching skill, setting the foundation for teaching effectiveness as well as commitment to the profession (Hoy, 2000; Klassen & Chiu, 2010). Research has shown that after five years of teaching, many novice educators will plan to continue teaching until retirement (Hughes, 2012; Sun, 2012). These teachers have passed a critical benchmark, and research suggests that many of them will remain in the teaching profession for much of their careers (Klassen & Chiu, 2011).

Unfortunately, it is also during this crucial developmental period that novice teachers are most likely to decide to pursue career paths other than teaching, and the “revolving door” of teacher recruitment, hiring, and development must start again. This cycle of high levels of teacher turnover costs students dearly in terms of lost potential for effective instruction, as schools with above average turnover are more likely to rely on inexperienced novice teachers in the classroom (Loeb et al., 2005; Rivken et al., 2005;

Simon & Johnson, 2015). Schools experiencing excessive teacher turnover may also be forced to rely on underprepared substitute teachers, or teachers not fully certified to teach, leaving students with little “curricular coherence” due to frequent changes in personnel (Klein, 2015; Loeb et al., 2005, p. 49). High levels of teacher turnover disproportionately affect schools with low achieving and minority populations (Ronfeldt et al., 2013). It also adds significant expense for districts and taxpayers in the rehiring and training that accompanies these high levels of turnover in the profession.

This literature review will highlight several constructs that serve as the theoretical framework for this study, starting with Bandura’s social cognitive theory and the construct of self-efficacy beliefs (Bandura, 1971, 1997). Using social cognitive theory and general self-efficacy as an overall umbrella, I will explore self-efficacy for teaching and implicit theories of intelligence. It is these latter two constructs that are the foci for investigation. General self-efficacy will provide a background for understanding teacher self-efficacy beliefs and, as discussed earlier, it is the intersection of beliefs about teacher self-efficacy and implicit theories of intelligence that will be used as characteristics for cluster analysis of novice teachers, which forms the basis for this research. Cluster analysis assists researchers seeking to “capture information about the way personality dimensions are organized at the individual level” (Asendorpf & Denssen, 2006, p. 487). The resulting profiles, or clusters of novice teachers will be used to examine the possibility that particular profiles are related to novice teachers’ intent to remain in the profession.

Social Cognitive Theory

Beliefs influence our perception of reality. David Bohm, a physicist who worked closely with Einstein, is credited with making the following statement during a 1977 lecture given at Berkley University,

Reality is what we take to be true. What we take to be true is what we believe.

What we believe is based upon our perceptions. What we perceive depends on what we look for. What we look for depends on what we think. What we think depends on what we perceive. What we perceive determines what we believe.

What we believe determines what we take to be true. What we take to be true is our reality. (as cited in Ricard & Thuan, 2000, p. 121)

The theoretical frameworks used in this study are about beliefs, both belief in one's personal agency for purposeful action and beliefs about one's inherent intellect and learning ability. These belief systems combine to form powerful sources of motivation, persistence, and resilience, especially in the face of challenges. Pajares (1992) argued that teacher beliefs represent an important path of inquiry, as exploration may find a "strong relationship between teachers' educational beliefs and their planning, instructional decisions, and classroom practices" (p. 326). As novice teachers navigate the early years of developing teaching skill and confidence, challenges can be a professional way of life. Developing an understanding of the beliefs these teachers hold for their own personal agency and intelligence may assist in providing essential support and targeted feedback to enable the professional growth that is critical to overcoming the challenges in their nascent careers (Levin, 2015).

Self-Efficacy

Social cognitive theory centers on the exercise of personal agency, or the ability to produce desired effects through the actions taken in our lives. A personal sense of agency is guided through belief in our personal efficacy to make things happen. This belief, or perceived self-efficacy, refers to our personal beliefs about our capacity to plan and carry out the action or actions necessary to get things done (Bandura, 1997).

Efficacy beliefs exert a wide range of influence over the courses of action chosen, including the amount of effort one is willing to put forth, the level of perseverance shown, how well one will cope with challenges, and resilience to adversity (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Chu, 2011). Through the symbolic representation of aspirational outcomes, we can motivate our behavior in pursuit of those outcomes, and while doing so, our efficacy beliefs influence current action (Bandura, 1971). This ability to activate both thought and behavior in the service of future achievements can have beneficial results or unintended consequences, but it is the belief in our personal power to make things happen that will have profound effects on the actions we take in our lives.

Our efficacy beliefs are a key factor in the development of competence in the pursuits we choose. People with similar skills in a particular area, for instance, may operate poorly, adequately, or exceptionally, depending on their belief system. Those who regard themselves as notably efficacious in a given area will tend to perform at a higher level than those who have a poor formulation of their ability in the same area. It is worth noting that this process is independent of a person's *actual* skill level at the outset. Having high efficacy beliefs can facilitate increased cognitive functioning; foster interest

and motivation; improve goals and the commitment to reaching them; and heighten effort when challenged (Bandura, 1997). These are individuals who accept difficult tasks as challenges to be undertaken, and maintain belief not only in their ability to prevail, but also that the effort put forth will increase their skill and capacity. People with low efficacy beliefs will display doubt in their abilities, find it hard to stay motivated, and give up quickly in the face of obstacles. This leads to a tendency to set low goals and aspirations for themselves, and when facing adversity to dwell on diagnosing personal deficiencies and conjuring calamitous outcomes. Once thinking has been diverted to envisioning personal failings and poor results, cognitive processes, and hence effective functioning, become diminished (Bandura, 1997; Bandura et al., 1996; Boyatzis & Akrivou, 2006).

Effective deployment of our efficacy beliefs requires use of cognitive and behavioral skills, and can call for the use of emotional self-regulatory skills as well. Facing challenging tasks and circumstances can tax our efficacy beliefs and introduce the possibility that our usual display of skill and ability will not suffice. These instances call for managing affective reactions like frustration, disappointment, or doubt. Efficacy beliefs can vary depending upon task contexts, such that someone who feels highly efficacious in a skill area may find themselves struggling when additional demands are introduced (e.g., a student who feels confident and competent solving math problems in the usual classroom environment, but struggles to do so under timed conditions like a test).

The implementation of self-efficacy beliefs also happens within context. According to Bandura (1997), there are triadic influences on personal functioning. Those

influences are 1) internal personal factors, 2) environmental forces, and 3) behavior, and all three affect one another. Personal factors in the form of cognitive and affective events interact with environmental influences, and help to determine our outward behavior. Our self-efficacy beliefs operate within a larger social system, which is influenced by social sources of information. People typically do not live in isolation but work together to collaborate for the purposes of achieving specific outcomes. This extends the idea of self-efficacy to include to a collective sense of efficacy, which can exert profound effects on group members. This collective efficacy becomes “a group’s shared belief in its conjoint capabilities to organize and execute courses of action required to produce given levels of attainments” (Bandura, p. 477).

Bandura (1971, 1997) judged an optimistic sense of one’s capabilities to be a source of adaptive functioning and positive well-being. Maintaining self-destructive thought patterns of doubt and failure can only dampen the ability to set high goals and to thrive and grow in tackling life’s inevitable challenges. Bandura theorized that efficacy beliefs come from four distinct sources: mastery experiences, vicarious experiences, verbal persuasion, and affective states.

Sources of self-efficacy. The four sources of self-efficacy serve as the major avenues through which we build a sense of personal belief in our abilities. Bandura (1997) noted that these sources of information are not instructive in their own right, but become so through reflective thought and are mediated through personal and contextual factors that impact the ways in which experiences are cognitively processed.

Of the four sources for development of beliefs about efficacy, mastery experiences, or learning through direct experience, are deemed the most powerful (Chen

& Usher, 2013; Tschannen-Moran, Hoy, & Hoy, 1998). Through a process of repeated practice and governing consequences, behaviors assessed as successful become part of a repertoire of actions. As individuals orchestrate the thinking, behavior, and affective management needed to take action, they also develop hypotheses about what types of behaviors are most successful under a variety of task demands. Successful experiences, or mastery experiences, serve to strengthen self-efficacy beliefs, and add confidence about capabilities for future action under differing or more challenging contextual task demands.

The second source, learning through vicarious experiences, involves observing models enacting the target activity, comparing, and subsequently emulating others' performances (Bandura, 1997). Seeing someone else complete a task offers the opportunity to assess one's own skill in reference to a model's performance, and determine the degree of ability required. It can also serve as a cautionary tale, and may deter ineffectual, damaging, or even dangerous behavior based on outcomes experienced by others. Conversely, observing someone modeling a behavior or task could deter effective action if the modeled performance is poor or fails in some way.

A third source, verbal persuasion, can serve to further develop self-efficacy beliefs, especially during periods of significant difficulty or challenge (Bandura, 1997). Getting a verbal 'pep talk', especially from an esteemed peer or colleague can assist during challenging times, and help to re-energize beliefs about efficacy and motivation (Fives, Hamman, & Olivarez, 2007; Gurvitch & Metzler, 2009). This source of self-efficacy will have the greatest influence when it is assessed to both include accurate information, and emanate from a source that is valued and trusted. Verbal persuasion

may take the form of formative feedback about a performance, which can be framed in the positive and is likely to support self-efficacy beliefs, or framed in the negative, which will likely diminish self-efficacy beliefs.

Bandura's (1997) fourth and final source for self-efficacy development is embedded in emotional and physiological reactions to a situation. Performance may be impaired by heightened emotional states; emotional distress or nervousness can further mar both execution of an action plan as well as the ability to accurately reflect on the learning. Learning to effectively manage emotional states, especially early in the learning stages of acquiring a new skill, can increase openness to the remaining three sources of self-efficacy, and promote the use of feedback and reflection about skill performance.

In summary, these four sources of self-efficacy are a major tenet of social cognitive theory, and are all context specific. The sources of self-efficacy beliefs shape our thoughts and behavior and are deeply embedded in human psychosocial functioning, helping to influence effort, perseverance, and resilience. Our sense of self-efficacy regulates how we respond to the world, whether we welcome or shun challenges, how we recover from adversity, and the types of goals we set for ourselves. This means a personal belief about our own efficacy has profound impact on the development of adaptive behaviors, or behaviors more likely to produce positive, rather than negative outcomes.

Impact of self-efficacy. Perceived self-efficacy can vary by areas of functioning, and so does not represent a global attribute of thinking processes (Anderson & Stillman, 2012; Bandura, 1997). As such, efficacious thinking patterns may be different in diverse

contexts, and have an impact on context specific behavior, intention, and motivation.

Overall Bandura (1993, 1997) stated that those with a high sense of personal efficacy will be individuals who experience increased cognitive functioning and view difficult tasks as challenges to be mastered instead of avoided.

Among students, Zimmerman, Bandura, and Martinez-Pons (1992) noted the role of high academic self-efficacy in setting challenging goals and aspirations for their own learning. Zimmerman et al. also found that students with high self-efficacy beliefs for strategic regulation of their learning were more confident about achieving those goals, and were able to achieve at higher academic levels. This echoes Bandura's (1993) findings that a higher sense of academic self-efficacy in students predicted subsequent achievement levels.

Teacher Self-efficacy

In addition to the domain of student learning and achievement, another of the domain specific areas of function that has also received considerable attention in the self-efficacy research literature is that of teaching. Self-efficacy for teaching has the potential for impact not only on an individual teacher's functioning, but on that of his or her students as well (Allinder, 1995; Klassen et al., 2009). As noted earlier, the novice years of teaching may be challenging. Those challenges, and the self-efficacy beliefs that teachers hold for surmounting difficulties may influence the assumptions they carry forward regarding their fitness for the profession (Fantilli & McDougal, 2009). Hoy and Spero (2005) noted changes in teacher self-efficacy throughout both the preservice and novice phases of their careers, finding that student teaching increased a sense of efficacy for teaching, but the early phase of their careers eclipsed self-efficacy for teaching.

Teacher beliefs regarding their own self-efficacy for teaching, both in the context of learning to teach and in their relation to important student outcomes may be critical to easing the transition from novice to seasoned effective professional educators (Fives & Buehl, 2008).

Efficacy beliefs are context specific and as such, teaching can form its own unique context for the development of efficacy beliefs. Teacher self-efficacy is a teacher's belief about personal capabilities to bring about positive student outcomes in the classroom (Tschannen-Moran & Woolfolk Hoy, 2001). Tschannen-Moran and Woolfolk Hoy (2001) found teacher self-efficacy to have three distinct components: self-efficacy related to student engagement, self-efficacy for instructional strategies, and self-efficacy in the realm of classroom management. Teacher self-efficacy for student engagement reflects a teachers' beliefs that they can motivate and engage students to participate in the learning process. Teacher self-efficacy for instructional strategies refers to teachers' belief in their abilities to employ a variety of effective instructional strategies, and teacher self-efficacy for classroom management encompasses teachers' belief in their ability to regulate and maintain student behavior.

Like self-efficacy beliefs in general, teaching self-efficacy beliefs exert strong influence over teachers' effort, goal setting, and instructional planning/organization (Klassen et al., 2009). Allinder (1995) found that teachers with high teaching self-efficacy set more ambitious goals for students and showed a willingness to continue to change goals more frequently. Klassen and Chiu (2011) reported that teachers who hold strong feelings of efficacy for using effective teaching strategies are more committed to the profession, and less likely to express a desire to move to other career paths. Gibson

and Dembo (1984) found individuals who held higher teacher self-efficacy beliefs devoted more time to instruction, provided struggling students with help, and used more praise. Teachers with lower self-efficacy spent more time on non-academics like games, gave up on students more easily, and were more likely to criticize students who were struggling. Teachers with a strong sense of self-efficacy for teaching have also been shown to be willing to experiment with innovative methods, deploy a broader range of instructional strategies in the classroom, and maintain effective classroom management techniques (Klassen & Chiu, 2010; Wolters & Daugherty, 2007). Wang et al. (2015) used survey research to determine that teachers' self-efficacy for teaching was an important predictor of their personal emotional and physical health. Further, teachers reporting high levels of self-efficacy for teaching were more likely to report lower levels of burnout, less frequent illness symptoms, and lowered intention to quit the profession (Wang et al., 2015). These researchers also noted that teachers with greater confidence in their teaching abilities tended to modify instruction to accommodate a wide variety of learner needs, focusing on overcoming challenges to ensure students' successful learning.

An individual teacher's self-efficacy for teaching can also be influenced by the teaching environment, specifically one in which fellow teachers also hold a strong sense of self-efficacy for their teaching. This collective sense of efficacy for teaching created a school environment characterized by faculty whose perceived sense of efficacy included their use of instructional strategies, their ability to engage students, and their classroom management skills, and also produced lower levels of student misbehavior (Chong, Klassen, Huan, Wong, & Kates, 2010). Chong et al. (2010) also found that collective

teaching efficacy exerted an influence on academic climate, creating norms for the use of effective teaching strategies and higher expectations for student achievement.

Bandura's (1997) sources of self-efficacy (mastery experiences, vicarious experiences, verbal persuasion, and affective states) are all salient characteristics of the teaching experience. Within teacher self-efficacy, thinking can vary with differing task demands. An elementary teacher might feel very efficacious in working with young children, but possess strong doubts about their ability to manage a classroom of high school seniors. Similarly, a confident math teacher may harbor low performance expectations for their own teaching if they were suddenly asked to deliver an English lesson.

Self-efficacy for teaching has been found to positively impact student achievement and teachers' job satisfaction across a global array of classroom settings with differing cultural contexts. Establishing that teachers' self-efficacy for teaching crosses national and cultural borders means researchers can feel an increased sense of confidence in the universality and generalizability of this construct. Klassen et al. (2009) explored the construct of teacher self-efficacy across nationalities to discover whether the Teacher's Sense of Efficacy Scale (TSES) (Tschannen-Moran & Woolfolk-Hoy, 2001) maintained validity in multiple contexts, and found that the measure showed a strong internal consistency of factor structure among teachers from five different countries: Canada, Cyprus, Korea, Singapore, and the United States.

Bandura's (1971, 1993, 1997) social cognitive theory and the construct of self-efficacy offer a framework for understanding the development of a belief system, one that everyone holds but that sometimes operates "below the radar" of our day-to-day

cognitive functioning. Beliefs influence much of what people do, from their thinking to their observable behavior (Chen, 2012; Dweck & Leggett, 1988; Fives & Buehl, 2014) even though these beliefs are often unarticulated and unexamined. Being implicit means that these theories are used to determine a course of action on a regular basis, without a thorough understanding of the content, nature, or impact they have on day-to-day functioning. Bandura also recognized, though, that the ideas we hold about the nature of our abilities could have a profound impact as well. Bandura's (1997) theory included cognitive, motivational, affective, and selective processes that mediate the effects of our efficacy beliefs. These processes usually operate together to orchestrate the implementation of self-efficacy beliefs. One of the most important belief systems relates to the conception of ability people hold about the nature of their skills and abilities (Bandura, 1997; Dweck, 2000; Dweck & Leggett, 1988). Bandura (1997) noted that thinking of abilities and skills as factors that can be improved through attention, practice, effort, and persistence assists in developing and maintaining high levels of self-efficacy beliefs. On the other hand, conceptualizing ability as an inherent, immutable, and unchangeable characteristic can degrade a sense of self-efficacy. These two ideas; one that skills and abilities can be developed, and the other that skills and abilities are unchangeable, have been the focus of additional research, and are the next topic examined here.

Implicit Theories of Intelligence

Dweck's (2000) implicit theory of intelligence centers on the idea that people hold one of two conceptualizations for intelligence. The first is that their intelligence is a fixed trait, which is the belief that individuals possess a certain amount that they are born

with and which cannot be changed. This innate version of intelligence as an immutable characteristic is termed an “entity theory” because it is a belief that something exists within us that is unchangeable. The other is a conceptualization that intelligence is a malleable trait, one that we can change and cultivate through learning and effort (Dweck, 2000; Dweck & Leggett, 1988; Mueller & Dweck, 1998). This idea of intelligence is termed an “incremental theory” because it implies that intelligence can be improved through the growth and practice of skills and abilities.

Dweck’s (2000) research challenges some strongly held notions in our society, especially about children and learning. As a society, we have long held the idea that learners with high ability are more likely to welcome challenge and take on arduous tasks, and the belief that praise, especially for intelligence, will improve both children’s general conceptions of their abilities and their intrinsic love for learning. Our mental representations for ability and intelligence are developmentally formed and can impact behaviors and attitudes into adulthood (Olson & Dweck, 2008). Being implicit, these “deeply held, often unexamined, beliefs” (Fives & Buehl, 2008, p. 135), can affect development across the lifespan without an individual’s full awareness. Lacking awareness of these processes can mean that aspects of development, like receiving praise or tackling difficulties, can be mediated and even undermined by this personal framework of beliefs (Dweck, Chiu, & Hong, 1995).

Entity theorists. Entity theorists are those who believe intelligence is a fixed trait that cannot be modified or developed. This entity attribution orients the way in which an individual understands human abilities, and leads an entity theorist to explain negative performance in terms of a lack of ability, not a lack of effort (Dweck, 2000;

Hong et al., 1999). This “core assumption in an individual’s world view” (Dweck et al., 1995, p. 268) creates a pattern of thinking that has detrimental effects over an individual’s life span. The belief may lead an individual to display what Dweck (2000) calls a *helpless response*, or a view that circumstances are beyond their control and failure cannot be ameliorated.

Entity theorists are more likely to explain negative life events in terms of global personal failure related to a fixed level of ability (Dweck et al., 1995). This makes entity theorists particularly vulnerable to a helpless response when facing challenges, because they quickly come to doubt their intelligence, and their ability to perform a given task at a particular level. Judging a task to be too hard or beyond one’s ability level triggers thinking that denigrates personal capabilities and makes a person more likely to give up quickly. As Dweck and Leggett (1988) found, these individuals are also more likely to set goals that minimize challenge and are intended to both demonstrate their mastery of a skill area and ensure they are able to display adequate or exemplary performance at the chosen level. Dweck (2000) calls these goals *performance goals*, as they are intended to display high ability and obtain positive judgments of competence and performance from observers. Performance goals are all about looking good in the eyes of others.

As teachers, entity theorists might act upon these unarticulated and frequently unexamined foundational beliefs in ways that will impact their teaching performance, attitudes, and persistence, and influence the approach they will take to student learning and motivation. Fives and Buehl (2008) have reported findings that both pre-service and practicing teachers with entity beliefs tended to place less importance on knowledge of theory and the development of content and pedagogical knowledge. Duckworth, Quinn,

and Seligman (2009) found that early career teachers' use of more optimistic explanatory styles for negative life events correlated positively with measures of student achievement. This use of an optimistic explanatory style suggests the possibility for the opposite effect, that teachers with less optimistic styles may hamper student achievement. Dweck et al. (1995) noted that entity theorists tended to apply the "fixed trait" thinking to traits not only in themselves, but also in others, including moral character. In doing so, they made sweeping judgments about the character of others based on knowledge of minor wrongdoing and were quicker than incremental theorists to recommend punishment.

Incremental theorists. The conceptualization of intelligence for incremental theorists is different. For these individuals, intelligence is a malleable trait that can change and grow with attention and intentional practice. Instead of attributing poor performance to a lack of ability, an incremental theorist is more likely to explain it in terms of lack of effort and skill. This core assumption that skills and abilities can be developed with attention and practice can also affect development. These are individuals who hold a framework of thinking that influences judgments and behavior, and can lead to an enjoyment of challenges and a willingness to persist at difficult tasks as an adaptive path to skill development.

Incremental theorists are more likely to show persistence and tenacity in the face of challenges (Dweck & Leggett, 1988). These individuals are also more likely to view effort as a means for increasing ability instead of viewing effort as indicative of low ability (Hong et al., 1999). Incremental theorists tend to welcome challenges as an opportunity for new learning, and tend to set goals that emphasize the chance to master new skills or increase their level of performance. Despite initially equal ability levels,

after experiencing failure at a task, incremental and entity theorists will react very differently to information that might be beneficial to their performances. Incremental theorists are much more likely to welcome feedback and assistance as a path to mastery, whereas entity theorists are much more likely to reject offers of feedback or assistance, finding this indicative of low ability (Mueller & Dweck, 1998).

As teachers, incremental theorists will also be guided by this implicit belief both in their own practice and in the ways in which they conceptualize ability in their students (Fives & Buehl, 2008). The idea that teaching ability is either an innate quality one possesses or a quality that can be developed through training and reflection might easily play a role in a novice teacher's thinking about their own career development. Fives and Buehl (2008) found that, when asked, a majority a research sample of indicated they felt teaching was an innate ability. The implications of holding this innate teaching ability belief could lead novice teachers to give up easily in the face of challenges, believing there is nothing they can do to develop their own teaching skill. Conversely, a novice teacher who is also incremental theorist might respond very differently, and welcome the opportunity for growth, the assistance of others, and the chance to master new skills (Mueller & Dweck, 1998).

Holding an incremental theory of intelligence also has been shown to influence the ways in which judgments are made about others, and for teachers, this would include judgments about their students (Hong, Chiu, Dweck, & Sacks, 1997). Incremental theorists tended to judge others less negatively, and seek additional information about an individual's behavior instead of making global negative judgments based on minimal knowledge.

Impact of implicit theories of intelligence. The underlying beliefs regarding entity or incremental theories of intelligence become the subscriber's reality, and as such are predictive of attitudes and behaviors regarding the self and others (Dweck et al., 1995). These two implicit theories people hold about their intelligence have been shown to have significant positive effects on learning (Dishon-Berkovits, 2014; Blackwell, Trzesniewski, & Dweck, 2007; Mangels, Butterfield, Lamb, Good, & Dweck, 2006; Yeager & Walton, 2011), motivation (Dweck & Leggett, 1988; Mueller & Dweck, 1998), coping strategies (Mangels, Good, Whiteman, Maniscalco, & Dweck, 2012; Yeager, Trzesniewski, & Dweck, 2013; Hong et al., 1999), and goal setting (Dweck & Leggett, 1988; Senko, Hulleman, & Harackiewicz, 2011).

The positive effect of implicit theories on adaptive behaviors like motivation and coping have mostly been noted in research on students, but far less work is found in the literature regarding teachers (Dweck, 2000). As noted earlier, teachers' self-efficacy for teaching was an important predictor of workplace health issues like burnout, illness, and intent to quit the profession (Wang et al., 2015). These researchers also noted that teachers displaying a greater sense of efficacy for teaching also were more likely to work at overcoming challenges. There is however little research that examines the combined role of both self-efficacy for teaching and implicit theories of intelligence in assisting teachers to persist through their initial years of teaching challenges to remain committed to the education profession and develop an intent to remain in teaching as their long-term career plan.

Intent to Remain in Teaching

The early years of a teacher's career are often characterized as a very challenging and stressful time period in which new teachers are sometimes isolated in their classrooms and left to their own devices (Smith & Ingersoll, 2004). It is also during these years that novice teachers must gain skills at a rapid rate, including critical aspects of teaching like instructional strategies, student engagement, classroom management, and dealing with disciplinary concerns. So perhaps it should not be surprising that since 1995 teacher attrition rates have slowly been increasing, and that after their first five years, over 30% of novice teachers leave the profession (The National Commission on Teaching and America's Future, 2007). With current reform efforts that are dependent on teachers who remain committed to the profession, as well as to their individual schools' goals and vision (Firestone & Pennell, 1993; Somech & Bogler, 2002), encouraging novice teachers to stay presents a challenge to education theorists and practitioners alike. Reducing teacher attrition has the potential to increase student learning and significantly decrease turnover costs for school districts across the nation (Carroll, 2007; Hanushek, 2010).

Teacher stress has been implicated in increased desire to leave the profession, especially among teachers who also displayed a lower self-efficacy for teaching (Klassen & Chiu, 2011; Klassen & Durksen, 2014; Wang et al., 2015). A strong sense of self-efficacy for teaching has been found to mediate the effects of that stress, as well as increase job satisfaction and professional commitment (Jepson & Forrest, 2006; Jones & Youngs, 2012; Klassen, 2010; Klassen & Durksen, 2014; Wang et al., 2015).

The isolated nature of teaching may make developing efficacy beliefs more challenging for new teachers. In fact during interviews, novice teachers have cited

isolation as one of the most salient and troubling factors of their early teaching experiences (Fantilli & McDougall, 2009) Beebe (2013) measured teachers' intent to remain in the profession and compared those findings with several other aspects of novice teachers' experiences. She found that supportive working conditions were most likely to predict a new teachers' intention to remain in the teaching profession. This finding raises the idea that new teachers, accustomed to the social nature of teacher preparatory activities like classroom activities/discussions, proximity to cooperating teachers during student teaching, and possibly even use of social media, might find the isolated nature of classroom teaching a bit lonely.

Principals play an important role in developing teachers' sense of their own efficacy. Ebmeier (2003) noted that teacher confidence, satisfaction, and job commitment were all directly impacted by principal supervision. Fantilli and McDougall (2009) offer recommendations for improving novice teachers' experiences that include improved leadership training for school administrators, with the expressed purpose of promoting collaborative school culture and providing access to resource staff. It is those resource staff, or mentor teachers, who are positioned to offer the type of strong mentoring experiences that can assist novice teachers in the development of the teaching self-efficacy skills they need (Durksen & Klassen, 2012; Siwatu & Chesnut, 2015).

These findings are echoed by Ware and Kitsantis (2011), when they found a positive relationship between principals' self-efficacy, teachers' sense of teaching self-efficacy, and teacher commitment to remain in the profession. Chan, Lau, Nie, Lim, and Hogan (2008) noted that one of the positive outcomes of professional commitment included lowered turnover rates, lowered absenteeism, and increased job satisfaction.

These findings speak to the need for administrators to be actively involved in supporting new teachers. as they play an important role in the development of teacher self-efficacy, work satisfaction, and job commitment (Ebmeier, 2003).

Certainly it would appear, as hypothesized earlier, that developing a robust sense of self-efficacy for teaching in novice teachers could play an important role in encouraging teachers to remain committed to their profession, their students, and their schools. Together, the beliefs novice teachers hold for their self-efficacy for teaching and implicit theories of intelligence may influence opinions they hold about their abilities as teachers, and those opinions in turn, may lead them to make decisions about whether to persist in the teaching profession through the initially difficult beginning years. Developing a better understanding of the ways in which novice teacher beliefs shape future career paths may offer insight for the improvement of induction and retention activities, in order to nurture and sustain beginning education professionals.

A Person-Centered Approach

Person-centered approaches to data analysis differs from the more common variable-centered approach in its focus on the individual (Laursen & Hoff, 2006). Variable-centered approaches start from the assumption that a population is homogeneous in its relationship to the variables under study. Person-centered data analysis is based on the assumption that there will be differences among individuals on the variables under study, and the ways in which those variables will impact on outcomes. This point of view encompasses the proposition that an individual is an integrated, dynamic organism. Cluster analysis is then used to groups individuals in to profiles, or clusters, each comprised of individuals who share similar patterns of relations

among variables (Laursen & Hoff). Person-centered models “are predicated on the assumption that the population is heterogeneous with respect to how the predictors operate on the outcomes” (Laursen & Hoff, 2006, p. 379). This makes this analytic method particularly well-suited for questions seeking to determine individual differences in developmental patterns (Magnusson, 2003).

Summary

This study will use cluster analysis to identify naturally occurring profiles of teaching self-efficacy and implicit theories of intelligence beliefs in novice teachers, and look for relationships between particular profiles and teachers’ intent to stay in the teaching profession. This is research that has the potential to contribute to the literature on novice teachers’ beliefs and novice teacher retention by identifying combinations of characteristics that may suggest increased likelihood of remaining in the teaching profession. Teachers who remain in the teaching profession over time gain important skills, have the opportunity to become increasingly proficient at teaching, and are more likely to foster achievement in the students they teach.

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Chapter 3: Methods

As noted in earlier chapters, retaining novice teachers presents a challenge to schools (Education Commission of the States, 2005; Goldrick et al., 2012; Klassen & Chiu, 2011; Maciejewski, 2007; Smith, 2007). In keeping with the research questions, this study was conducted to elucidate novice teachers' beliefs about teaching self-efficacy and implicit theories of intelligence in order to better understand how these personal beliefs influence intent to remain in the profession. The research methods used are outlined in this chapter, including the participants, data sources, data collection procedures, and data analysis. Finally, delimitations, limitations, and assumptions, and ethical considerations are addressed.

Research Questions

- RQ1. What novice teacher profiles emerge from cluster analysis using the variables of self-efficacy for teaching and implicit theory of intelligence?
- RQ2. To what extent do these profiles of novice teacher characteristics predict intent to remain in the teaching profession?
- RQ3. Are certain profiles over-represented or under-represented by the demographic categories of gender, race, teaching level, subject area, school setting, or estimated SES of students?

This study generated quantitative data from an online survey administered to novice teachers (i.e., teachers in their first five years of teaching), and used hierarchical cluster analysis to form “mutually exclusive groups, each having members that are as much alike as possible” (Ward, 1963, p. 236). These groups of characteristics form teacher profiles, and each particular profile was then correlated with their intent to remain in the teaching profession to determine whether certain profiles are more related to intent to remain in or leave the profession.

Participants

Participants for this study were teachers in their first through fifth year of teaching (i.e., novice teachers) in Kindergarten through Grade 12. Participants were delimited to novice teachers because teacher attrition rates are highest within the first five years of teaching (Hughes, 2012; Ingersoll & Merrill, 2010). Research has shown that after five years of teaching, many teachers see the profession as a viable option for themselves, and plan to continue teaching until retirement (Hughes, 2012; Sun, 2012). These teachers have passed the critical five-year mark, and research suggests that many of them will remain in the teaching profession for much of their careers (Klassen & Chiu, 2011).

There were an initial 360 potential survey participants, but after an initial screening question — “How long have you been teaching? —, 104 completed responses were recorded. After careful examination and some preliminary analyses, it became apparent that two of the 104 participants’ responses were not following an expected pattern. Measuring Implicit Theory involves items that theoretically should be mutually exclusive. This means that if a respondent answered a survey item designed to assess whether he or she holds an entity theory of intelligence with a low score (i.e., disagree or

strongly disagree), it follows that that same respondent would select a higher value (i.e., agree or strongly agree) for incremental theory items. Electing low values for both theories would mean, for example, respondents *disagreed* with both “To be honest, you can’t really change how intelligent you are” and “You can always substantially change how intelligent you are,” even though these items were adjacent to each other on a single page of the survey. After finding that two of the survey respondents had responded in this manner, they were removed from the sample on the basis that these responses may have been from individuals who had not read and/or understood the meaning of the survey items as they were written. Additionally, when cluster analysis was performed on the sample of 104, these same two responses consistently formed their own cluster of only two members, a group size too small to have statistical power. For this reason, all further analyses were performed using a sample size of 102 participants, still a large enough sample size for the research methodology being used here.

Table 1 shows descriptive statistics for the adjusted sample group on the various demographic categories collected as part of the survey.

Table 1

Sample Demographics

Demographic Category		All participants	
		Number	Percentage
Gender	Male	31	30.4%
	Female	71	69.6%
Years of Teaching	Yr. 1	26	25.5%
	Yr. 2	17	16.7%
	Yr. 3	20	19.6%
	Yr. 4	21	20.6%
	Yr. 5	18	17.6%
Race	White	42	41.2%
	Black	16	15.7%
	Asian	22	21.6%
	Hispanic	19	18.6%
	Native American	1	1%
	Other	2	2%
School Context	Urban	44	43.1%
	Suburban	44	43.1%
	Rural	14	13.7%
% Free/Reduced-Price Lunch	0 -25%	34	33.3%
	26-50%	15	14.7%
	51-75%	29	28.4%
	76-100%	24	23.5%
Teacher Prep Program	University Based	85	83.3%
	Alt Route	17	16.7%

Induction Program	Yes	40	39.2%
	No	62	60.8%
Mentor or Coach	Yes	53	52%
	No	49	48%

Data Sources

The survey was compiled using complete versions of existing questionnaires for each of the three constructs under consideration: self-efficacy for teaching, implicit theory of intelligence, and intent to stay in the teaching profession. By using instruments that were already tested for validity and reliability, I could be assured that each research variable was fully and reliably assessed using an appropriate number of questions. The questionnaires used to build the survey instrument were:

- The Teacher Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001)
- Theories of Intelligence Scale – Self Form For Adults (Dweck, 2000)
- Intent to Stay Questionnaire (Olivier, 2001)

For most survey items, respondents were asked to quantify their responses. For demographics questions, responses were in a forced choice format (e.g., Gender: Male/Female). Each section of the survey corresponded to one of the three constructs under assessment, and was introduced by a set of directions for responding to that particular section. The survey included 36 questions (Table 2), broken down as follows:

Table 2

Survey Contents

Survey Construct	No. of items
Teacher self-efficacy	12
Implicit theory	8
Intent to stay	9
Demographics	7

Teacher self-efficacy. Teacher self-efficacy beliefs were assessed using the 12-item Teacher Sense of Efficacy Scale (TSES) – Short Form (Tschannen-Moran and Woolfolk Hoy, 2001). A consistent three-factor structure characterizes the TSES: self-efficacy in student engagement, self-efficacy in instructional practices, and self-efficacy in classroom management. Each of the factors was assessed with four questions each. Examples include “How much can you do to motivate students who show low interest in school work?” (Student engagement), “To what extent can you craft good questions for your students?” (Instructional practices), and “How much can you do to control disruptive behavior in the classroom?” (Classroom management). Response scales for these questions ranged from one to nine, where *Not at all* was scored as 1, and *A great deal* was scored as 9. Interim descriptors include *Very little*, *Some degree*, and *Quite a bit* (see Appendix A).

Implicit theory of intelligence. Novice teachers were assessed in order to uncover their implicit theory of intelligence using the eight item Theories of Intelligence Scale – Self Form for Adults (Dweck, 2000). Four of the items assess entity theory (e.g.,

“You have a certain amount of intelligence, and you really can’t do much to change it.”) and four items assess incremental theory (e.g., “You can always substantially change how intelligent you are.”). Response scales for these questions ranged from one to six, where *Strongly disagree* scored a one, and *Strongly agree* was scored as six.

Intent to stay. Teachers’ intent to remain in the teaching profession was assessed using the nine item Intent to Stay Questionnaire (Olivier, 2001) in an attempt to “better understand the personal, psychological, and work context factors that have cognitive, affective, and behavioral elements that contribute to the desire of teachers to remain in teaching” (Beebe, 2013, p. 103). This questionnaire was originally developed to evaluate the relationships between variables such as culture, efficacy, caring, and teachers’ intentions to stay or leave the profession. Questions like “I intend to remain in the teaching profession as my long-term professional career” are positively worded, but others like, “I am actively seeking other employment other than teaching” attempt to reveal teachers’ intent to leave the profession. Responses ranged from a one (*Strongly disagree*) to a four (*Strongly agree*) across a four-point scale.

Demographic data. Additional questions to assess demographic information were used in this study, and included gender, race, grade level, subject area, teaching context (urban, suburban, or rural), and estimated SES of students. All demographic questions were included at the end of the survey and did not include any personally identifiable information. Demographic characteristics for the study sample of novice teachers and the school contexts in which they teach are shown in Table 3 and 4.

Table 3

Demographic Characteristics of Participants

Gender	Teacher Prep. Program	Years Teaching	Race
Male: 30.8%	University: 83.7%	1: 26.9%	White: 40.4%
Female: 69.2%	Alternative: 16.3%	2: 16.3%	Black: 15.4%
		3: 19.2%	Asian: 21.2%
		4: 20.2%	Hisp: 20.2%
		5: 17.3%	Nat. Am: 1%
			Other: 2%

Table 4

School Contexts

Teaching Context		Estimated SES of Students	
Urban:	44.2%	0-25% Free/Red. Lunch:	32.7%
Suburban:	42.3%	26-50% Free/Red. Lunch:	14.4%
Rural:	13.5%	51-75% Free/Red. Lunch:	28.8%
		76-100% Free/Red. Lunch:	24.0%

Survey respondents were also asked about the subject and grade they currently teach. These statistics are reported by number only, as it is reasonable to assume that some teachers, especially elementary teachers, teach more than one subject and/or those in a specialty area like library science or the arts, teach more than one grade. For this reason, means and standard deviations are not reported for this data. Tables 5 and 6 offer an overview of the sample distribution of subject areas and teaching grade levels, respectively.

Table 5
Sample Participants' Subject Areas

Subject Area	N
Reading/Lang Arts	50
Math	48
Sciences	34
Social Studies	35
Arts	10
Physical Education	10
Library Science	3
Computer Technology	9
Special Education	19
Other	16

Table 6
Sample Participants' Teaching Grade Levels

Level	N
Kindergarten	25
Grade 1	18
Grade 2	22
Grade 3	25
Grade 4	19
Grade 5	18
Grade 6	20
Grade 7	17
Grade 8	16
Grade 9	20
Grade 10	22
Grade 11	20
Grade 12	27

Data Collection

Potential study participants were recruited through a third-party contractor, Qualtrics, a software company specializing in online data collection and research analysis. Qualtrics distributed the survey using a network of panel providers designed to ensure a diverse pool of potential respondents from “traditional, actively managed market research panels” (Qualtrics, 2014, p. 3). Using a combination of IP address checks and digital fingerprinting, Qualtrics prevents duplication of respondents to provide reliable results

(Qualtrics, 2014). In order to achieve a representative sampling of the target population, Qualtrics (2014) documentation states “panel partners randomly select respondents for surveys where respondents are highly likely to qualify” (p. 4). Data obtained are maintained in a password-protected account that is accessible only to the researcher and a project management team at Qualtrics. Survey research has some inherent difficulties, one of which can be low response rates. In order to obtain sample sizes needed, surveys must go out to a large number of potential respondents, knowing that response rates can be as low as 2-3% of the original pool. It was for this reason that Qualtrics was contracted to distribute the surveys.

Potential survey respondents were first asked to read a cover letter explaining that the survey was designed to gather their thoughts related to being a novice teacher. The cover letter also detailed that participation was voluntary, should take no more than 15 minutes, and that they could stop at any point during the survey. Further information was provided telling readers that the purpose of this research was to better understand some characteristics of novice teachers, and that results may be used to improve novice teacher retention and support. Participants were offered the opportunity to receive a summary of results if they were interested, and that they could email the researcher to receive that summary. Otherwise, their responses would remain completely anonymous.

While it is not known how many invitations to participate were sent out, Qualtrics logged a total of 350 completed survey responses. Of the 350 responses, many were culled after answering the initial screening question, “How long have you been teaching?” with “I’ve been teaching six years or more.” At that point, survey respondents were redirected to a page of the survey thanking them for their willingness to participate,

explaining that data was being collected only from respondents with five years or less of experience, and terminated from further participation. The 104 responses that remained after screening became the sample participants for this study.

Data Analysis

Survey results were analyzed using a person-centered cluster analysis technique, which “seeks to identify homogenous subgroups of cases in a population” (Garson, 2014, p. 1). Person-centered analysis integrates aspects of human development as a basis for holistic understanding of the function of an individual, and allows for the synthesis of results from disparate constructs (Bergman et al., 2003). This type of research seeks to better understand individual development processes through increased understanding about how and why people “think, feel, act, and react” (Magnusson, 2003, p. 5) in response to their environment.

Cluster analysis is recommended for use when the researcher does not know the number or nature of subgroups in advance. By minimizing within-group variation, and maximizing between-group variation, person-centered approaches distill clusters based on individual characteristics of functioning and development (Bergman et al., 2003). These clusters of characteristics form mutually exclusive groupings of the characteristics described earlier, ensuring that group members are as much alike as possible (Ward, 1963).

Cluster analysis can reveal distinct profiles, or constellations of characteristics, along the dimensions of teacher self-efficacy and implicit theories of intelligence. This technique is considered an agglomerative method, which means that at the start of the analysis, each individual represents his/her own cluster (Chen, 2010). The number of

clusters is then systematically reduced until the data groupings make theoretical and intuitive sense to the researcher, and demonstrate homogeneity of group members (Bergman et al., 2003). These clusters were examined and correlated with Intent to Stay scores to determine whether certain profile groupings are predictive of members' intent to remain in the teaching profession (see Table 7).

Table 7

Data Sources and Analysis

Research Question	Related Survey Questions	Method of Data Analysis
RQ 1. What teacher characteristics emerge from profile analysis clustered on the variables of self-efficacy for teaching and implicit theory of intelligence?	2 - 21	Hierarchical Agglomerative Methods
RQ 2. To what extent do particular clusters of novice teacher characteristics predict intent to remain in the teaching profession?	22 - 30	Tests for Correlation, Analysis of Variance (ANOVA)
RQ 3. Are certain profiles over- or under-represented by the demographic categories of gender, race, grade level, subject area, teaching context (urban, suburban, or rural), or estimated SES of students?	31 - 39	Descriptive Statistics, Chi-Square

Delimitations/Limitations/Assumptions

Delimitations. Delimitations of this study include sample size and research methodology. The participants were delimited to novice teachers in their first through fifth year of teaching. Sample size for this research study was 104 novice teachers, which, while adequate for the current purpose may not be representative of the population under consideration. The choice of person-centered analysis for data analysis reflects a theoretical assumption of individual functioning as an integrated whole. When this approach is contrasted with variable centered analysis, which would serve to aggregate static variables, the person-centered analysis reflects a more developmental and holistic view of personality development (Bergman & Trost, 2006).

Limitations. Limitations to this study include the use of a self-report instrument, the voluntary nature of the survey completion, and low response rates. Self-report instrumentation means that respondents are answering questions completely on their own (see Assumptions, below), so researchers are reliant on an assumption of participant honesty. Participation for this research was voluntary, which means that some potential respondents may have chosen not to respond or submit a survey. This implies that generalizing results should be done with caution, and with a complete understanding of study design and limitations.

Assumptions. Self-report survey instrumentation requires an assumption that participants are answering questions honestly, based on their own feelings, experiences, values or behavior.

Ethical Considerations

Approval for conducting this research was requested and subsequently approved through Educational Internal Review Committee at the College of William and Mary (see Appendix B). Participants gave their consent to be included in this survey research by agreeing to the statement of informed consent that preceded the survey questions and had to be completed in order for respondents to continue. This statement offered information about the background and purpose of the research, gave contact information should they have questions, reminded participants of the voluntary nature of the survey, and provide a statement of benefits and known risks for participating. Currently, there are no known risks associated with agreeing to complete this study.

Chapter 4: Results

The purpose for this study was three-fold: (a) to determine whether novice teachers cluster into particular profiles based on their responses to survey items assessing their self-efficacy for teaching and their implicit theory of intelligence, (b) to determine whether certain profiles are related to an expressed intention to remain in or leave the teaching profession, and (c) to explore how membership in each profile was distributed with regard to particular demographic categories.

Reliability of Survey Measurements

The reliability for each composite variable was assessed using Cronbach's alpha. Tschannen-Moran and Woolfolk-Hoy (2001) found that a three-factor structure accounted for 69% of the variance in the TSES. These three factors are: efficacy for student engagement (Items 3, 5, 8, & 12), efficacy for instructional strategies (Items 6, 10, 11, & 13), and efficacy for classroom management (Items 2, 4, 7, & 9). In the analysis, the Teacher Sense of Efficacy Scale (TSES) – Short Form (Tschannen-Moran & Woolfolk-Hoy, 2001) yielded a reliability rating of .91 for all 12 items. Subscales were also calculated and revealed reliability results for Student Engagement ($\alpha = .78$), Instructional Strategies ($\alpha = .75$), and Classroom Management ($\alpha = .80$).

Theories of Intelligence Scale – Self Form for Adults (Dweck, 2000) was broken down into two scales. Reliability analyses were run on the four questions relating to entity theory ($\alpha = .83$), and the four questions relating to incremental theory ($\alpha = .82$).

The last measurement scale used in this group of surveys was the Intent to Stay Questionnaire (ISQ; Olivier, 2001), which was also analyzed for reliability and yielded a Cronbach's alpha of .83.

Descriptive Statistics

Before variables could be formed to reflect the original factor structure of each of the survey instruments used, several survey items needed to be recoded. I reversed the scoring on items 14, 15, 17, and 19 of the Theories of Intelligence Scale. These were the questions measuring an entity theory of intelligence. This meant that all survey items were scored in a direction that made them consistent with one another. Once recoding was complete, each set of variables was created to reflect the factor structure found during the original development and analysis of each measure. Descriptive statistics were run for the 102 cases for the composite variables under study. These data are found in Table 8.

Table 8

Descriptive Statistics for Transformed Variables

	Min.	Max.	M	SD
TSE for Student Engagement	2.00	5.00	3.90	.68
TSE for Instructional Strategies	2.00	5.00	4.10	.64
TSE for Classroom Management	2.00	5.00	3.90	.64
TIS-Entity Theory	1.00	3.00	2.11	.64
TIS-Incremental Theory	3.00	6.00	4.57	.86
Intent to Stay	2.00	4.00	2.75	.32

Note: TSE = Teacher Self-Efficacy; TIS = Theories of Intelligence.

Research Question One

Research question one sought to determine what teacher characteristics emerge from profile analysis clustered on the variables of teacher self-efficacy and implicit theory of intelligence.

Previously, I have hypothesized that teachers might cluster together into four groups. Two groups would be comprised of members whose characteristics included a high sense of self-efficacy for teaching matched with either an incremental theory or an entity theory of intelligence. The other two groups would include members with a low sense of self-efficacy for teaching matched with either an incremental or an entity theory of intelligence. So, groups would break down in this way: high self-efficacy for teaching/incremental theory; high self-efficacy for teaching/entity theory; low self-efficacy for teaching/incremental theory; low self-efficacy for teaching/entity theory. Bandura (1997) has theorized that when individuals construe failure as an indicator that competency building is needed (an incremental theory) that their sense of efficacy will be enhanced. These are individuals who seek challenges as a path to expanding their knowledge and capacity (Wood & Bandura, 1989). If, however, an individual interprets that same failure as indicative of low inherent ability (an entity theory), personal efficacy will suffer, as low performance will be construed to carry threats of unfavorable evaluation by others (Wood & Bandura, 1989). This predicted the possibility that clustering would group individuals with both a high sense of self-efficacy for teaching and a more adaptive, or incremental theory of ability. Conversely, individuals reporting both a low sense of self-efficacy for teaching and an entity theory of intelligence would cluster together.

Cluster analysis was performed using the factors of self-efficacy for teaching (student engagement, instructional strategies, and classroom management) and implicit theory of intelligence (entity theory or incremental theory), initially using hierarchical cluster analysis that employed Ward's Method and used squared Euclidian distance as the measure of distance between cases. At this point in the analysis, variables were standardized, using z-scores to allow for comparison across constructs. Using the agglomeration schedule along with the dendrogram and the icicle plot, it was determined that three-, four-, and five-cluster solutions should be examined for theoretical coherence. Cluster analyses were then run a second time using K-means, a method that allows the researcher to specify the number of groups. K-means analyses were run separately for the three-, four-, and five-cluster groupings, allowing for an examination and comparison of the groupings, based on the means and standard deviations in each cluster solution.

Initial cluster analysis. In order to identify potential profiles of novice teachers in the sample, I used a person-centered approach for analysis. This kind of analysis means individuals with similar clusters of characteristics are clustered together (Vansteenkiste, Sierens, Soenens, Luyckx, & Lens, 2009). A person-centered approach, or cluster analysis, acknowledges the organization of individual characteristics within a person as the method for clustering based on similarities (Bergman et al., 2003). Grouping individuals who share these patterns of characteristics is beneficial when researchers want to establish and analyze group membership (Garson, 2014; Wormington, Corpus, & Anderson, 2012).

Once all survey items were recoded to provide consistent scoring values, and survey items were transformed to reflect variables present in the original factor structure

of each measurement (Dweck, 2000; Olivier, 2001; Tschannen-Moran & Woolfolk-Hoy, 2001), cluster analysis could be run. Initial analysis was performed in SPSS using hierarchical cluster analysis. Hierarchical cluster analysis in SPSS produces two visual representations of the data—a dendrogram and an icicle plot—and these can be used to examine the clustering in this early stage of analysis. Combined with an agglomeration schedule, which offers the researcher a numerical summary of the clustering process, the dendrogram and the icicle plot can assist in determining the number of clusters, or groupings, suggested by the data. The dendrogram is used to visually assess the cohesiveness of the clusters and provides the researcher with a method for making a preliminary decision regarding an appropriate number of clusters. An icicle plot shows all clusters formed, and visually displays how cases are combined at each iteration of the analysis. The agglomeration schedule presents the numerical distances between the cases being combined, and the last cluster level at which a case joined the cluster.

Using this combination of tools, I examined a range of possible clustering solutions. Starting with the dendrogram, I noted the large distance between clusters in a two-cluster solution, and determined that a two-cluster solution might result in groups that are still very different from each other, making it difficult to achieve the level of homogeneity within groups that is a hallmark of this analytical methodology. The dendrogram appeared to suggest that more clusters were present in the data, but Aldenderfer and Blashfield (1984) note that this procedure alone is “hardly satisfactory because it is generally biased toward the needs and opinions of the researcher” (p. 54). Next, use of the icicle plot for further analysis showed that three, four or even five groups might be present, but this procedure also is appropriate for preliminary decisions only.

Finally, the agglomeration data is used to create an elbow graph, which is analogous to the “scree test” typically used in factor analysis. Researchers can look for an upward break or curve in the data, suggesting “that no new information is portrayed by the following mergers of clusters” (Alderderfer & Blashfield, 1984, p. 54). This graph confirmed that four or five clusters appeared to be present in the data, and that analysis on solutions of more than five clusters became redundant, and clusters were no longer significantly different from each other.

Finalizing cluster solutions. Careful examination of the three-, four-, and five-cluster solutions revealed that the four-cluster solution, while remaining parsimonious, also provided separation of the clusters on each of the variables under study, and appeared to provide the most theoretically sound set of groupings. In the three-cluster solution, two of the group means are nearly identical on several factors, providing little discrimination between the two groups on those particular clustering characteristics (see Figure 1).

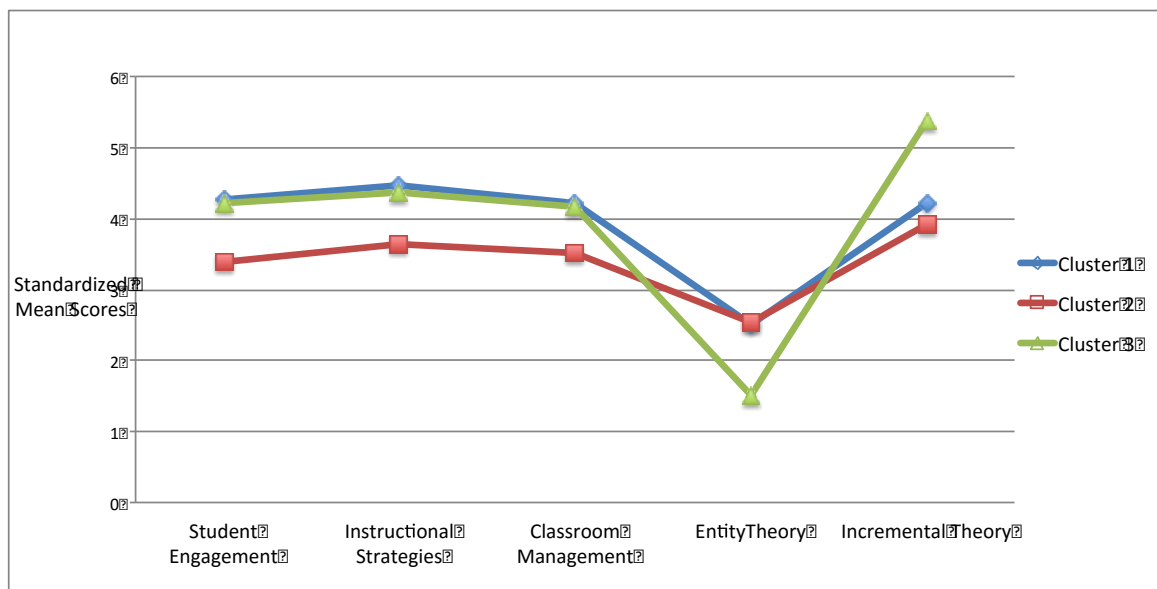


Figure 1. The three cluster solution.

In a four-cluster solution, each cluster is represented by differing means on most of the

clustering variables, so that each cluster, or profile retains differences in characteristics while following the same general pattern as the three-cluster groupings (see Figure 2).

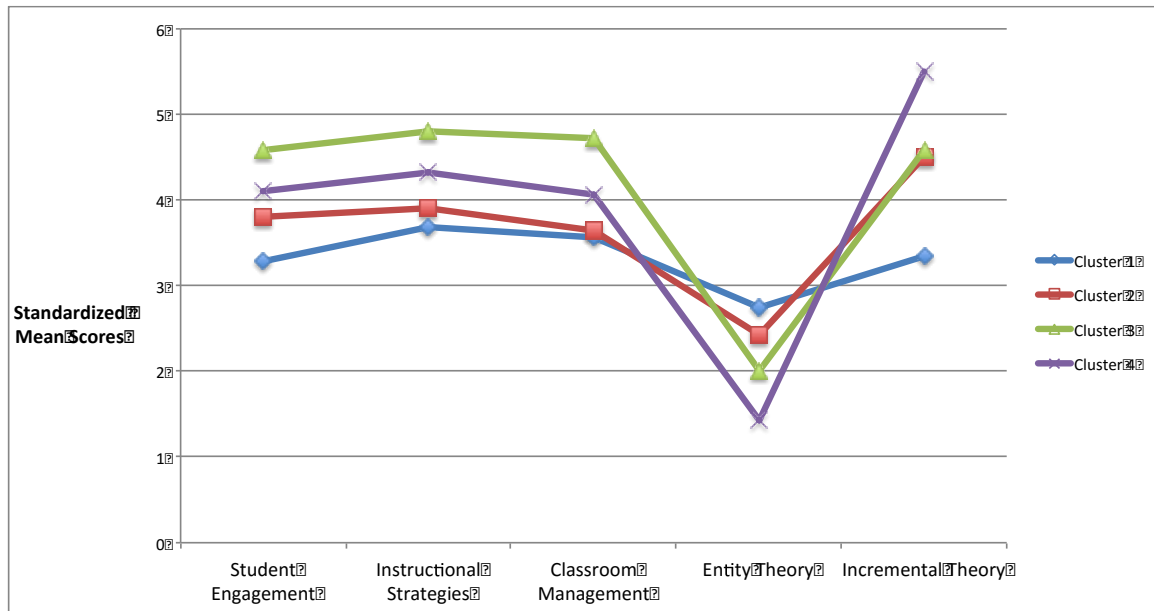


Figure 2. The four cluster solution.

A five-cluster solution again follows a similar pattern as the three- and four-cluster groupings, and does not appear to add any additional differences to the types of clusters formed by analysis (see Figure 3)

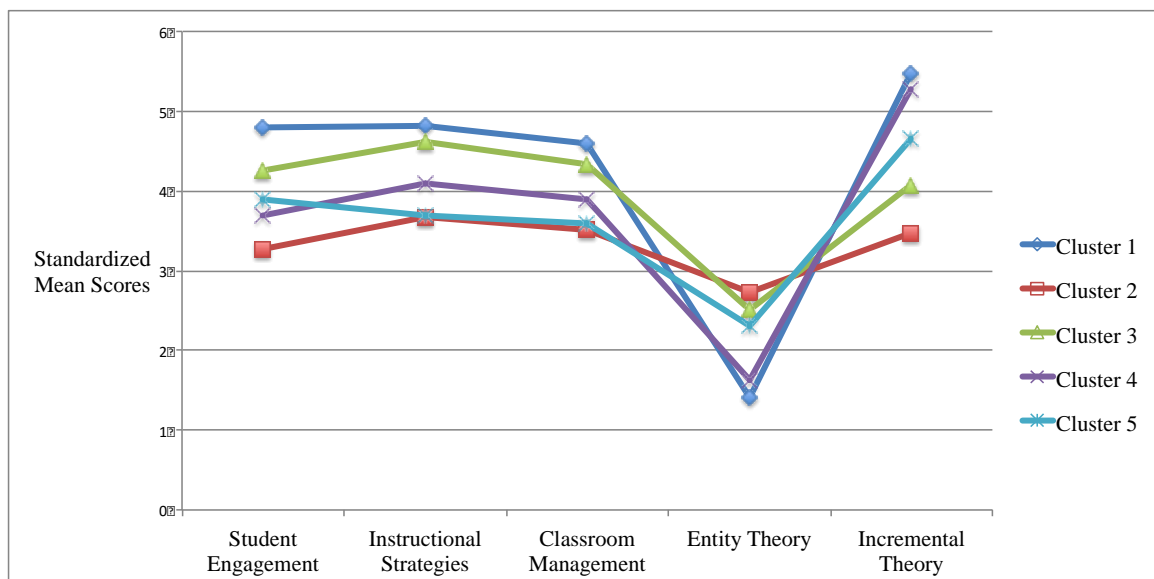


Figure 3. The five cluster solution.

As noted, the four-cluster solution offered the most parsimonious resolution, while still retaining some distance between clusters on most of the variables tested. As evident in Figure 2, the initial hypothesis for research question one appears to be supported; that is, novice teachers do cluster into groups, or profiles that show a high sense of efficacy for teaching pairs with an incremental theory of intelligence. Group sizes are indicated in Table 9. Each cluster is further discussed in the subsequent sections.

Additionally, as noted in the section on research question two, significant differences were seen when the four-cluster solution was used as the independent variable, and compared to novice teachers' intent to remain in the profession. Results for the three-cluster solution, $F(2, 99) = 1.096, p = .338$, and the five-cluster solution, $F(4, 101) = 2.484, p = .049$, were less robust. The statistical power of the four-cluster solution made it a clear choice for use in the final analysis.

Table 9

Cluster Sizes, Means, and Standard Deviations by Clustering Variable

Clustering Variables	Cluster 1 n=20 (19.6%)		Cluster 2 n=36 (35.2%)		Cluster 3 n=19 (18.6%)		Cluster 4 n=27 (26.5%)	
	M	SD	M	SD	M	SD	M	SD
Student Engagement	3.39	.51	3.80	.41	4.60	.42	4.11	.59
Instructional Strategies	3.68	.54	3.90	.40	4.80	.27	4.32	.45
Classroom Management	3.56	.44	3.65	.38	4.72	.37	4.10	.50

Entity Theory	2.74	.29	2.42	.40	2.00	.52	1.42	.42
Incremental Theory	3.34	.35	4.50	.44	4.58	.65	5.50	.41

Cluster one. Cluster one ($n = 20$) appears to be made up of novice teachers who feel the least confident in their teaching abilities and display the least adaptable thinking pattern in their beliefs about intelligence. These teachers scored lower than all the other clusters in their sense of self-efficacy for teaching ($M = 3.39$ for Student Engagement, 3.68 for Instructional Strategies, and 3.56 for Classroom Management). Figure 4 also shows that these teachers display the highest scores for entity theory ($M = 2.74$), and the lowest scores for incremental theory ($M = 3.34$), indicating they are relying on an implicit theory of intelligence that is the least adaptable or constructive. These teachers likely also conceptualize their students' intelligence in the same manner (Dweck et al., 1995) and may tend toward teaching strategies that are informed by their personal beliefs of intelligence as a fixed quality (Buehl & Fives, 2009; Mueller & Dweck, 1998).

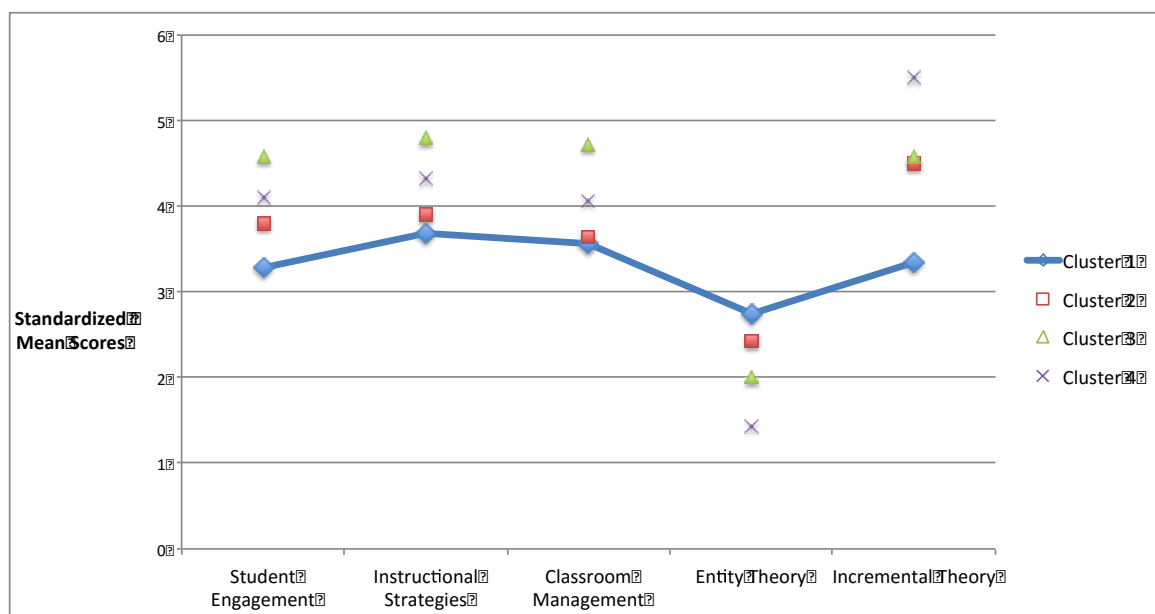


Figure 4. The four cluster solution with cluster one highlighted.

Cluster two. Unlike cluster one, the teachers who make up cluster two ($n = 36$) tend towards a slightly higher sense of self-efficacy for teaching ($M = 3.80$ for Student Engagement, 3.90 for Instructional Strategies, and 3.65 for Classroom Management), and hold an entity theory ($M = 2.42$) that is also the second highest among the groups. This cluster's incremental theory ($M = 4.50$) though, is nearly as high as cluster three (see Figure 5), indicating an implicit theory orientation that could make this cluster of teachers as likely as cluster three, and more likely than cluster one, to use an incremental theory to explain both their own belief patterns and their belief patterns regarding their students, when challenged in the classroom (Dweck et al., 1995).

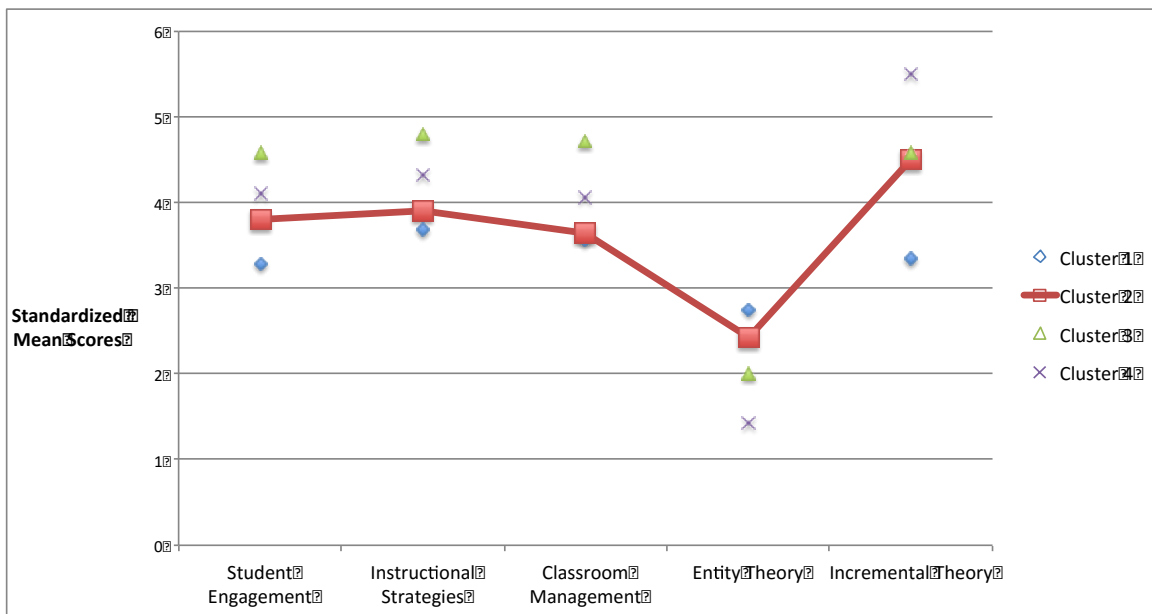


Figure 5. The four cluster solution with cluster two highlighted.

Cluster three. The teachers in cluster three ($n = 19$) show a similar pattern to clusters one and two, but their scores on their sense of self-efficacy for teaching ($M = 4.60$ for Student Engagement, 4.80 for Instructional Strategies, and 4.77 for Classroom Management) are the highest of all four clusters. This means that of the four clusters, this group of novice teachers reported the strongest sense of self-efficacy for teaching. Cluster

three teachers also reported holding an implicit belief system that favored incremental theory ($M = 4.58$) over entity theory ($M = 2.00$), which also means this group has a stronger orientation towards a more adaptive belief system than clusters one and two. This group of teachers display an increased distance between scores between their reported beliefs, so that as the scores on entity theory go down, the scores for incremental theory rise (see Figure 6).

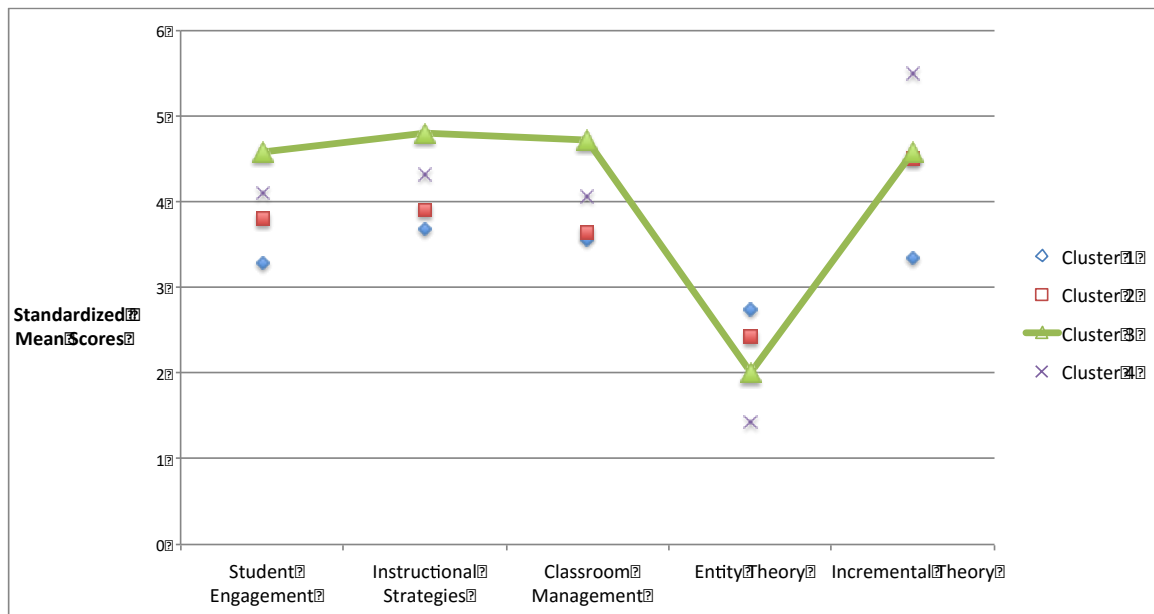


Figure 6. The four cluster solution with cluster three highlighted.

Cluster four. Cluster four ($n = 27$) sample teachers display the highest scores on the measure of an incremental implicit theory of intelligence ($M = 5.50$). This group also, conversely, displays the lowest scores for an entity theory of intelligence ($M = 1.42$), but were not the highest scoring group for their sense of self-efficacy for teaching ($M = 4.11$ for Student Engagement, 4.32 for Instructional Strategies, and 4.10 for Classroom Management). Figure 7 highlights the increasing distance between entity and incremental theories of intelligence, and shows the placement of this group for their scores on their sense of self-efficacy for teaching.

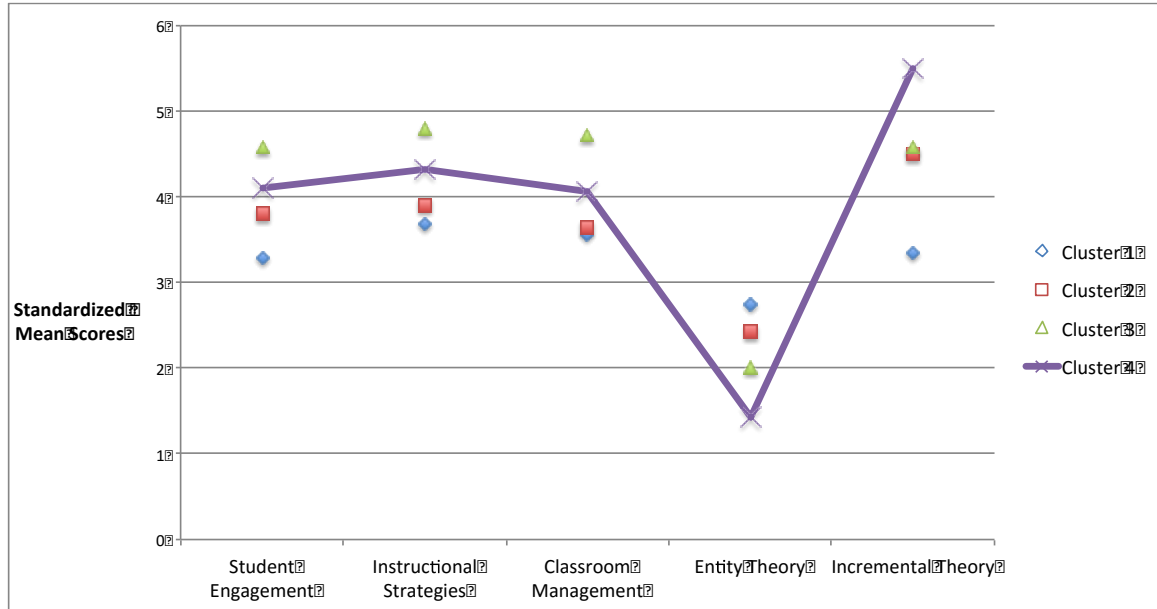


Figure 7. The four cluster solution with cluster four highlighted.

Table 10 displays the final cluster center distances, and illustrates the increasing differences between groups, showing the greatest difference between clusters one and four, and the smallest difference between clusters one and two.

Table 10

Distances Between Final Cluster Centers

Cluster	1	2	3	4
1	--	1.335	2.531	2.790
2	1.335	--	1.660	1.565
3	2.531	1.660	--	1.439
4	2.790	1.565	1.439	--

The evidence collected as part of this study suggests that novice teachers do tend to group together in the previously hypothesized clusters, although findings indicate that instead of groups representing strong differences between variables, the trend seems to show “variations on a theme.” In other words, as novice teachers’ scores for a sense of

efficacy for teaching increase, they also display an increase in scores reflective of an incremental theory of intelligence. This trend continues in degrees, so that as each cluster's scores increase in self-efficacy for teaching, they are accompanied by the increasing tendency toward an incremental belief system. There is also a tendency shown here that as one's sense of self-efficacy for teaching increases, the conceptualization of intelligence as an immutable capacity goes down. This may suggest that holding high sense of efficacy for teaching might be inversely associated with holding a less adaptive belief about intelligence.

Also notable is that the novice teachers in the sample who reported the lowest sense of efficacy for teaching also appear to also exhibit a stronger tendency toward an entity theory of intelligence. Certainly, the novice teacher profiles that included those with the lowest sense of self-efficacy for teaching, also displayed the highest scores for an entity theory of intelligence, and the lowest scores for an incremental theory of intelligence. This is most evident in cluster one, and may represent a profile of beliefs that make these novice teachers more vulnerable to the challenges inherent in the early years of a teaching career than those with a more adaptive profile of beliefs. This is the question explored in the next section.

Research Question Two

Research question two explores the extent to which particular clusters of novice teacher beliefs predict their intent to remain in the teaching profession. Analysis for this part of the investigation used analysis of variance (ANOVA) methods to determine whether cluster membership based on self-efficacy for teaching and implicit theory of intelligence was related to scores for intent to stay in the profession. It was hypothesized

that the clusters of teachers who displayed a higher sense of efficacy would also report a higher intention to remain in the teaching profession. Previous research has found a high sense of efficacy for teaching to be predictive of both job satisfaction and teacher retention for the following year (Curtis, 1994; Viel-Ruma, Houchins, Jolivette, & Benson, 2010; Yost, 2006).

One-way ANOVA was conducted using cluster membership as the independent variable and intent to stay as the dependent variable, and shows a statistically significant difference between clusters, $F(3, 98) = 3.208, p = .026$. Post hoc analysis using Tukey's honestly significant differences test revealed that the most significant differences occurred between clusters one ($M = 2.59, SD = .29$) and three ($M = 2.88, SD = .38$). This finding appears to support the hypothesis that clusters of teachers displaying higher scores in self-efficacy for teaching and an incremental theory of intelligence may be more likely to remain in the teaching profession. Pairwise comparisons are shown in Table 11.

Table 11

Pairwise Comparisons Between Cluster Groups

Cluster Number		Mean Difference	Significance
1	2	-.17	.180
	3	-.29*	.015
	4	-.14	.404
2	1	.17	.180
	3	-.12	.469
	4	.03	.974
3	1	-.29*	.015
	2	.12	.469
	4	.15	.309
4	1	.14	.404
	2	-.03	.974
	3	-.15	.309

*Significant at the .05 level

Research Question Three

Research question three sought to determine whether certain profiles are over- or under-represented by certain demographic categories. In other words, are there particular profiles, or clusters of teachers that contain more- or less-than proportionally expected numbers of certain demographic categories? As noted when discussing research question one, each cluster was seen to vary on the degree to which its members differed in reported beliefs about both self-efficacy for teaching and implicit theory of intelligence. Hypotheses for research question three included the possibility that teachers reporting less robust beliefs about their self-efficacy for teaching might be over-represented in schools with a population of students tending toward the low end of the SES scale, as measured by the percentage of students received free or reduced cost lunches (Bandura, 1993). Rubie-Davies, Flint, and McDonald (2012) also noted a slightly higher proportion

of female teachers in their study showing a preference an incremental theory of intelligence. Ladd (2011) also found that perceived working conditions exerted significant predictive power on teachers' intent to remain in the profession, which prompted the exploration included here in to potential differences among cluster groups for urban, suburban, and rural teachers.

Using cross tabulation methods and Pearson Chi Square Goodness of Fit analysis (see Table 12), it was determined that none of the demographic categories were over- or under-represented in any of the four clusters of novice teachers.

Table 12

Cross Tabulations with Pearson's Goodness of Fit

Demographic Category	df	N	Pearson Chi-Square Value	p
Gender	3	102	1.80	.62
Race	15	102	20.64	.15
School Context	6	102	7.61	.27
Free/Reduced Price Lunch	9	102	7.20	.62
Teacher Prep. Program	3	102	1.58	.66
Induction Program	3	102	2.67	.45
Coach/Mentor	3	102	1.14	.77

These results indicate that each cluster contains no more or less of the demographic groups included in this study than would be expected by chance.

Chapter 5: Conclusions

Beliefs are implicated in many areas of personal function in our lives. They influence the ways in which we attend to, interpret, respond to, and make meaning out of events by functioning as informational filters or frames for our thinking and as precursors to behavior (Pajares, 1992; Watt & Richardson, 2015). Teacher beliefs then, must surely have the power to influence practice in the classroom. Indeed, beliefs held by teachers have been shown to have a demonstrably positive impact in areas like student achievement (e.g., Blackwell et al., 2007), choice of instructional strategies (e.g., Dweck, 2007), goal setting (e.g., Butler, 2006; Wolters & Dougherty, 2007), forming judgements about students (e.g., Dweck et al., 1995), job satisfaction (e.g., Klassen, 2010; Klassen & Chiu, 2010), and epistemic beliefs (e.g., Buehl & Fives, 2009; Chen & Usher, 2013). Pajares (1992) has argued that “the investigation of teachers’ beliefs is a necessary and valuable avenue of educational inquiry” (p. 326). The purpose of this study was to examine the possibility that novice teachers’ beliefs, specifically their beliefs about their self-efficacy for teaching and their personal implicit theory of intelligence, might be related to their reported plans to remain in the teaching profession for the long-term future.

Clustering Solution

Novice teacher beliefs were assessed using survey items to elucidate both their sense of self-efficacy for teaching and their implicit theory of intelligence. After recoding responses and transforming variables to reflect the inherent factor structures of the original surveys, cluster analysis was used to explore whether survey respondents would cluster together in groups whose members displayed similar characteristics based on the variables used (Finch, 2005). Initial clustering took place using hierarchical cluster analysis, to explore the number of groupings that might make the most sense. The decision was made to use four groups for this analysis, as four groups allowed for maximum variability between groups, and additional groups beyond four decreased the statistical power of the solution.

One notable finding that pertains to all four groups is the emergence of a pattern; that higher scores on self-efficacy for teaching were typically combined with lower entity theory scores and higher incremental theory scores. In other words, higher self-efficacy for teaching among these novice teachers was associated with a concomitant tendency toward a more adaptive incremental theory of intelligence. This can be seen in the changes in mean scores in each cluster, starting with cluster one (see Table 13).

Table 13

Cluster Sizes and Means by Clustering Variable

Clustering Variables	Cluster 1 n=20 (19.6%)	Cluster 2 n=36 (35.2%)	Cluster 3 n=19 (18.6%)	Cluster 4 n=27 (26.5%)
	M	M	M	M
Student Engagement	3.39	3.80	4.60	4.11
Instructional Strategies	3.68	3.90	4.80	4.32
Classroom Management	3.56	3.65	4.72	4.10
Entity Theory	2.74	2.42	2.00	1.42
Incremental Theory	3.34	4.50	4.58	5.50

Each of the four groups exhibited some significant differences based on the grouping variables. To delineate some of these differences, I will be discussing the clusters as two separate groups, one group I will call the vulnerable group, made up of clusters one and two, and one group I will call the resilient group, made up of clusters three and four. Clusters one and two displayed the characteristics likely to make them more vulnerable to affective states indicative of stress, and hence less adaptive to challenges (Fives et al., 2007). Clusters three and four display characteristics of more resilient and flexible beliefs (Masten, 2014).

Vulnerable group. Clustering indicated that groups one and two reported the lowest sense of self-efficacy for teaching of all groups. These novice teachers also reported the highest scores for holding an entity theory of intelligence. This combination of teaching beliefs has been shown in the research to be the least adaptive for prevailing in challenging circumstances (de la Torre Cruz & Arias, 2007; Hong et al., 1999;

Skaalvik & Skaalvik, 2010; Wang et al., 2015; Yost, 2006). Indeed, Hong et al. (1999) found individuals holding an entity theory of intelligence were less likely to attribute failure to lack of effort or an acquirable skill, and less likely to act to remedy difficulties encountered. Fives and Buehl (2008) also contend that the belief that some people are just *born teachers* has been articulated by participants in their research, which means some novice teachers may be susceptible to the idea that they are *not* born teachers. When coupled with a low sense of self-efficacy for teaching and few opportunities to have had mastery experiences in the classroom, this tendency may lead these novice teachers to make negative judgments about their personal fitness for teaching. Tschannen-Moran and Hoy (2007) noted that mastery experiences seem to hold the most value for novice teachers' assessments of their teaching skill. Because they are in the early stages of their careers, teachers in this study will have had few experiences of mastery in the classroom, simply because of their limited experience overall. The novice teachers in these clusters though, who hold both poor beliefs about their self-efficacy for teaching and an entity theory of intelligence, are likely to be a vulnerable population in need of additional support during the initial years of their careers.

Cluster two teachers reported slightly higher scores for their beliefs regarding self-efficacy for teaching and slightly lower scores for an entity theory of intelligence than cluster one. These lower scores for entity theory are accompanied by slightly higher scores than group one for an incremental theory of intelligence, meaning as they move away from holding an entity theory, these teachers move toward holding an incremental theory of intelligence.

Both clusters one and two represent novice teachers in this study who scored at the low end of self-efficacy for teaching and displayed higher scores for holding an entity theory of intelligence. These two clusters of novice teachers may be representative of the combination of characteristics that make new faculty most vulnerable to the stress of a nascent teaching career. Tacit or implicit beliefs provide the framework within which one will assess and interpret teaching experiences. Those teaching experiences deemed unsuccessful will produce unfavorable self-evaluative thoughts which, when coupled with the belief that their abilities and aptitudes are immutable, may trigger a negative emotional response (Gregoire-Gill & Hardin, 2015). For a new teacher, this process may produce stressful experiences and interpretations of the teaching environment, especially as they do not feel efficacious in the classroom, and tend toward believing their teaching skills are not open to improvement with opportunities for repeated practice.

Understanding this profile of novice teachers could allow administrators, mentor teachers, and/or induction staff to customize or personalize the learning experiences for a group of teachers with these characteristics, with the understanding that early years of teaching represent a critical window for skill development. The teachers displaying these clusters of characteristics may need increased mentoring, mastery experiences, or professional development to assist them in building a resilient sense of their own self-efficacy for teaching and their ability to build skills and knowledge through repeated practice, constructive feedback, and reflection.

Resilient group. Novice teachers in clusters three and four displayed the highest scores for self-efficacy for teaching, and show the second highest scores for an incremental theory of intelligence. These cluster groups are made up of those novice

teachers who hold a strong sense of their self-efficacy for teaching in the classroom. Cluster three teachers may, however, still be “on the fence” about their beliefs pertaining to the nature of their intelligence, and could feel that their skill for teaching is still somewhat less malleable than those novice teachers in cluster four. Ashton (2015) noted that teachers’ beliefs can be held with varying degrees of certitude, so this cluster of novice teachers may be less certain about the nature of intelligence, but also may be more easily influenced to change this belief system given opportunities for awareness and professional development.

The novice teachers included in cluster four show scores that fall below cluster three for self-efficacy for teaching, but are the highest scoring group for holding an incremental theory of intelligence, and the lowest scoring group for an entity theory of intelligence. This is a noticeable pattern displayed in all four clusters—that as scores increased on the measure of self-efficacy for teaching, scores also tended to increase on survey items measuring an incremental theory of intelligence. This combination of beliefs about one’s own abilities for teaching has great functionality for novice teachers as they tackle the challenges of beginning a career in K-12 education. This resilient and adaptive combination of beliefs increases the possibility that novice teachers will be perseverant in the face of setbacks (Bandura & Wood, 1989) will exert high levels of effort (Watt & Richardson, 2008), set ambitious personal goals (Zimmerman et al., 1992), and maintain high levels of motivation (Dishon-Berkovits, 2014). Novice teachers displaying this cluster of characteristics may require different forms of mentoring and induction activities, as their stronger confidence in their efficacy for teaching and their belief that their teaching abilities are likely to change and grow with experience means

mentors and administrators will need to support the continued skill development in ways that might differ from those teachers in the vulnerable group.

Intent to Stay

Teachers scoring in the higher ranges of self-efficacy for teaching and displaying a more incremental theory of intelligence may be more likely to plan to remain in the teaching profession as their long-term career, according to the results of the ANOVA analysis. The implications of these findings could inform teacher preparation programs, new teacher induction programs, and mentor teacher training programs. These programs are all charged with the responsibility of educating, developing, and retaining the novice teachers who begin a career in teaching in K-12 schools nationwide each year.

Experience typically makes teachers better over time (Carroll & Foster, 2010; New Teacher Center at the University of CA, 2007; Ronfeldt et al., 2013), so encouraging teachers to remain in the profession is a critical task for educational administrators and policy creators. Time in the classroom allows teachers to hone their craft of instruction, classroom management, and student engagement. Pajares (1992), when speaking to the need for research into teacher beliefs, noted, “Little will have been accomplished if research into educational beliefs fails to provide insights into the relationship between beliefs, on the one hand, and teacher practices, teacher knowledge, and student outcomes on the other” (p. 327). Self-efficacy in the classroom has been shown to reliably predict teachers’ commitment to remain in the profession (Coladarci, 1992).

Demographic Proportionality

Analysis of the demographic composition for each cluster did not produce any differences in membership based on gender, school context, student SES, teacher

preparation program, the presence of a mentor, or an induction program beyond what would be expected to occur by chance. In other words, none of the clusters appears to contain an over- or under-representation of any of those demographic categories. This is good news, as it suggests that cluster analysis did not reveal any covert characteristics of the members. This means, for instance, that not all novice teachers reporting low levels of self-efficacy for teaching or entity theories of intelligence came from similar teacher preparation programs, or appeared to be concentrated in low SES schools. Having cluster groups with proportionally appropriate demographic representation also means that each cluster contains a sampling of each of the demographic categories used for this study.

Implications for Practice

Novice teachers require support to develop and grow as teachers during the initial phase of their careers. Understanding teacher beliefs in the context of both learning to teach and their relation to critical student outcomes can inform the development of professional experiences tailored to meet the current and future needs of the developing professional educator (Fives & Buehl, 2008). Hoy and Spero (2005) noted the need for teacher preparation programs to “prepare novice teachers to seek and create support for themselves in the early years of teaching” (p. 353). This idea of seeking support is something that may be accomplished through high quality induction/mentoring programs, many of which have been shown to increase novice teacher retention (Kang & Berliner, 2012; Smith, 2007); facilitate skill development in the early years of teaching (Algozzine et al., 2011; Hanushek, 2010; Richter et al., 2013; Rivkin et al., 2005); and improve student achievement (Sun, 2012). Induction programs can vary; at the very least, there may be an orientation session before school begins or mentoring services of a more

experienced teacher, and at best, they are comprehensive, multi-year programs of professional development, mentoring, and peer support. The opportunity for novice teachers to engage with experienced mentors can assist in providing mastery experiences, the very type of teaching experiences Hoy (2000) found to be most influential in the development of self-efficacy for teaching during both student teaching and initial years in the classroom.

The results of this study suggest that some teachers may be more vulnerable to the stress and high demand of the early years of teaching in K-12 settings, and that those are the teachers who are more likely leave teaching within their first five years in the profession. This knowledge might allow induction program staff to customize induction-related activities to best meet these vulnerable teachers' needs by, for example, offering a mentor with particularly adaptive and resilient belief systems, devising professional development activities that raise awareness of these critical beliefs, or simply increasing the amount of support offered both in and out of the classroom as beginning teachers develop their skills.

Induction programs may also consider restructuring their programs so that novice teachers are offered a reduced teaching load for their first year. This would allow for additional time to be spent in mentors' classrooms to observe, experiment, and collaborate in instructional design and delivery techniques. Gardiner (2012) found that when coaches received additional training, particularly to support goal setting, collaboration, and reflection, the novice teachers they worked with reported greater trust and emotional support, especially in the beginning of the school year. This mentoring model, known as educative mentoring, involves co-thinking, co-planning, modeling,

connecting theory to practice, problem solving, and reflective analysis (Gardiner). If, as part of the educative model, coaches had also been trained to recognize less adaptive thinking patterns like those elucidated in this study, they would also be well positioned to exert influence on these novice teachers through education, modeling, and verbal persuasion. In doing so, coaching practice could develop teachers' underlying beliefs in a way that may help them to persist in the profession.

Improvement in overall teacher quality has been shown to positively impact student achievement and offer economic gains (Hanushek et al., 2005; New Teacher Center at University of California, Santa Cruz, 2007). Researchers have found modest evidence that teachers reporting higher levels of self-efficacy for teaching can have a positive impact student outcomes (Bandura, 1993; Klassen et al., 2011). Goddard, Hoy, and Hoy (2004) noted this effect especially in school building displaying higher levels of collective teaching self-efficacy, which may function to create a cultural norm that include higher expectations for student achievement school-wide. Educating administrators regarding the impact of these cultural norms on student achievement might also assist them in understanding the role of building leader in developing novice teachers. As discussed earlier, these cultural norms of high expectation for students and strong teacher self-efficacy exert influence on novice teacher development as well. Assisting school administrators to understand the connections among leadership, strong building culture, and collective teacher self-efficacy can also play a part in developing novice teachers with adaptive belief systems regarding both their own skills and abilities, and their students' skills and abilities.

Retaining novice teachers can also cut costs to districts, as teacher churn is reduced (New Teacher Center, 2007; Sun, 2012). This cost savings can also come in the form of time savings for school and district administrators, as the need for continuous recruitment and hiring activities is reduced. Research efforts aimed at developing an understanding of what makes induction programs as effective as possible for novice teachers can further help to reduce these costs. Currently, only 27 states require induction programs for new teachers, and only six of those states require induction program lasting longer than two years (New Teacher Center, 2012). As increasingly greater percentages of school faculties are made up of novice teachers, ensuring that all new teachers experience a high-quality, multi-year induction program is increasingly important for state legislators to implement.

Finding ways to introduce the ideas of self-efficacy and implicit theory may be important for teacher preparation programs, as teacher candidates who have an awareness of these complex thought patterns will be more likely to begin to incorporate them into their teaching practice at an earlier stage of training. Improved understanding of teacher beliefs, particularly novice teacher beliefs, offers teacher preparation programs, K-12 administrators, and induction/mentoring staff a window through which to view the developing teacher. This has the potential to guide program and policy choices so that novice educators can get the assistance and support they need in order to remain committed to the profession for years to come.

Directions for Future Research

Continued research in to teachers' belief structures can only help to further elucidate the impact these implicit thought patterns exert on teachers' practices in the

classroom. Especially for novice teachers, beliefs may be a key factor in helping them to developing the skills and experience necessary to overcome the challenges inherent in the early years of a teaching career. Colardarci (1992) recommended future research that would include a “think aloud methodology, in which teachers’ thoughts are probed” (p. 335) as they answer questions related to teacher self-efficacy. Such data could add considerably to our understanding of the development of teachers’ self-efficacy beliefs may provide for the application of theory to practice. Using a think-aloud methodology would allow researchers to uncover some of the particular factors, thoughts, and considerations novice teachers employ as they work to develop the self-efficacy beliefs that can facilitate growth in the profession. Investigating the development, antecedents, and consequences of teacher belief systems “is a priority for future teacher efficacy research” (Klassen et al., 2011, p. xx).

The nature of this current study precluded the gathering of any qualitative data, like think aloud strategies or interviews, which could help researchers to more fully understand the nature and development of novice teacher beliefs, especially as they leave their teacher preparation programs and enter the teaching profession. Gaining insight in to the implicit belief patterns held by teacher candidates before, during, and after their transition from student to education professional might offer teacher educators a path to further educating future teachers about the powerful and influential nature of their belief systems.

For some time now, researchers in the field have voiced concern over high rates of attrition in the teaching profession, most notably during the first five years of employment. Ingersoll and Merrill (2010) note a lack of awareness and discussion of the

issue on the part of researchers, policymakers, and the public, and recommend further research to stem the tide of attrition in the education profession. Kang and Berliner (2012) add that it is imperative that school administrators, teacher educators, and education policymakers have a better understanding of the needs of beginning teachers and provide systematic structures of development to support professional learning and collaboration. Research investigating the development of novice teachers' belief systems may offer a better understanding for role these beliefs play in commitment to the teaching profession, and provide a path to reducing attrition.

This research was conducted using a fairly small sample size, so replication of the study would ideally involve larger groups of novice teachers. Studies done over a longer term might also gather data about the attrition rate of the participating teachers, and be better able to compare cluster membership with *intent* to remain, and those who *actually* remain in the profession. Klassen et al. (2011) recommended that future researchers “renew their focus on understanding how teacher efficacy is fostered by teacher education programs” (p. 40) through longitudinal research programs, as well as employing teacher-researcher collaboration to better understand how teacher efficacy beliefs influences classroom practices. Using a more classic, quasi-experimental design could also allow for research that might compare two groups on the effects of a program of studies offered in teacher preparation that is designed to make implicit thought patterns explicit. Making these belief systems explicit for teacher candidates holds the additional benefit that teachers with a more incremental theory of intelligence tend also to view others in the same way (Dweck & Leggett, 1988). This means teachers who believe their own abilities are malleable and can be cultivated with practice will hold the same beliefs

regarding their students. Teachers who display higher senses of self-efficacy for teaching are also more likely to encourage students to believe more strongly in their own abilities as well (Hoy, 2000).

Summary

Results of this cluster analysis study have shown that novice teachers have identifiable patterns of beliefs regarding their own self-efficacy for teaching and implicit theories of intelligence, and that those belief systems may influence their intention to remain in or leave the teaching profession. The implications of this research point to the need for improvements in teacher education programs, in order to better understand the genesis and growth of teacher self-efficacy beliefs. School administrators designing and delivering induction and mentoring programs may also benefit from this research as a path to improved support, mentoring, and retention of their newest professional educators. Lastly, there is a need for “a stronger research base that provides evidence for links between teachers’ self-efficacy and student outcomes” (Klassen et al., 2011, p. 40), allowing theory to guide the practice of educational preparation, induction, and continued professional growth.

Appendix A

Novice Teacher Retention Survey

Informed Consent

Background Information

You are being asked to participate in survey research regarding some of your thoughts related to being a novice teacher. This survey is part of dissertation research being conducted by an Ed. D. student at the College of William and Mary, located in Williamsburg, VA. You may contact Linda Feldstein (610-737-0091 or lefeldstein@email.wm.edu) and/or the College of William and Mary's Internal Review Committee (EDIRC) (757-221-2358) with any questions about this survey or the study in general.

Voluntary Participation

Your participation in this survey is completely voluntary, and you may stop responding to survey items at any time. Responses will be anonymous to the researcher and any other parties associated with this project.

Benefits

Your participation in this survey will contribute to a body of research designed and implemented to impact the retention of novice teachers throughout K – 12 educational settings. Your responses will assist researchers in better understanding novice teacher characteristics and better support new teachers in the field. Your timely and thorough participation in this survey research is greatly appreciated. There are no known risks or discomforts associated with this survey/study.

Consent

You have been informed regarding the purpose of this study and your voluntary participation in this survey. You have volunteered freely to participate. By indicating your agreement below, you confirm that you have read the information above and consent to participate in this survey.

Appendix B

Survey Questions

Question	Construct	Source	Scale	Data Type
1. How many years have you been teaching?	demographic		1 to 5	Nominal
2. How much can you do to control disruptive behavior in the classroom?	Teacher Self-Efficacy	Tschannen-Moran	1 to 5	Scale
3. How much can you do to motivate students who show low interest in school work?	Teacher Self-Efficacy	Tschannen-Moran	1 to 5	Scale
4. How much can you do to calm a student who is disruptive or noisy?	Teacher Self-Efficacy	Tschannen-Moran	1 to 5	Scale
5. How much can you do to help your students value learning?	Teacher Self-Efficacy	Tschannen-Moran	1 to 5	Scale
6. To what extent can you craft good questions for your students?	Teacher Self-Efficacy	Tschannen-Moran	1 to 5	Scale
7. How much can you do to get children to follow classroom rules?	Teacher Self-Efficacy	Tschannen-Moran	1 to 5	Scale
8. How much can you do to get students to believe they can do well in school?	Teacher Self-Efficacy	Tschannen-Moran	1 to 5	Scale
9. How well can you establish a classroom management system with each group of students?	Teacher Self-Efficacy	Tschannen-Moran	1 to 5	Scale
10. To what extent can you use a variety of assessment strategies?	Teacher Self-Efficacy	Tschannen-Moran	1 to 5	Scale
11. To what extent can you provide an alternative explanation or example when students are confused?	Teacher Self-Efficacy	Tschannen-Moran	1 to 5	Scale
12. How much can you assist families in helping their children do well in school?	Teacher Self-Efficacy	Tschannen-Moran	1 to 5	Scale
13. How well can you implement alternative teaching strategies in your classroom?	Teacher Self-Efficacy	Tschannen-Moran	1 to 5	Scale

14. You have a certain amount of intelligence and you really can't do much to change it.	Implicit Theory	Dweck, 2000	1 to 6	Scale
15. Your intelligence is something about you that you can't change very much.	Implicit Theory	Dweck, 2000	1 to 6	Scale
16. No matter who you are, you can significantly change your intelligence level.	Implicit Theory	Dweck, 2000	1 to 6	Scale
17. To be honest, you can't really change how intelligent you are.	Implicit Theory	Dweck, 2000	1 to 6	Scale
18. You can always substantially change how intelligent you are.	Implicit Theory	Dweck, 2000	1 to 6	Scale
19. You can learn new things but you really can't change your basic intelligence.	Implicit Theory	Dweck, 2000	1 to 6	Scale
20. No matter how much intelligence you have, you can always change it quite a bit.	Implicit Theory	Dweck, 2000	1 to 6	Scale
21. You can change even your basic intelligence level considerably.	Implicit Theory	Dweck, 2000	1 to 6	Scale
22. I intend to remain in the teaching profession as my long-term career.	Intent to Stay	Olivier, 2001	SA, A, D, SD	Scale
23. I will remain in teaching even though I might be offered a position outside of teaching with a higher salary.	Intent to Stay	Olivier, 2001	SA, A, D, SD	Scale
24. I would leave teaching tomorrow if I were offered a job for the same salary but with less stress.	Intent to Stay	Olivier, 2001	SA, A, D, SD	Scale
25. The personal and professional benefits outweigh the difficulties and frustrations of working in teaching.	Intent to Stay	Olivier, 2001	SA, A, D, SD	Scale
26. I am actively seeking other employment other than teaching	Intent to Stay	Olivier, 2001	SA, A, D, SD	Scale
27. I feel the personal and professional gratifications of working as a teacher to be greater than those in other professions.	Intent to Stay	Olivier, 2001	SA, A, D, SD	Scale

28. I frequently think about quitting my job.	Intent to Stay	Olivier, 2001	SA, A, D, SD	Scale
29. I am committed to working as a teacher even though it can be quite stressful at times.	Intent to Stay	Olivier, 2001	SA, A, D, SD	Scale
30. My intention to remain employed in teaching is stronger than that of most of my colleagues.	Intent to Stay	Olivier, 2001	SA, A, D, SD	Scale
31. What is your gender?	demographic		M, F	Nominal
32. What is your racial identity?	demographic		W, B, AI, A, PI, H, O	Nominal
33. What subject do you teach?	demographic		Varies (10)	Nominal
34. What grade do you teach?	demographic		K - 12	Nominal
35. What is the context of your school?	demographic		Urban, Suburban, Rural	Nominal
36. What is the approximate percentage of students who receive free or reduced lunch?	demographic		0 - 99	
37. What type of teacher preparation program did you receive?	Demographic		Univ./ Alt	
38. Are you currently participating in an induction program at your school or district, or did you participate in one in the past?	Demographic		Y/N	
39. Do you currently have a mentor or coach specifically assigned to work with new teachers, or did you in the past?	Demographic		Y/N	

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EDUCATION

- Ed.D. in Education Policy, Planning and Leadership** **May 2017**
(*Concentration: Curriculum Leadership*)
College of William and Mary – School of Education
- M.S. in Elementary School** **1997**
Villanova University
- B.S. in Special Education** **1985**
Gwynedd-Mercy University
- DISSERTATION:** Teacher Self-Efficacy and Implicit Theories of Intelligence:
Implications for Teacher Retention **January 2017**

PROFESSIONAL EXPERIENCE

- Fort Hays State University – Hays, KS **Aug. 2016-present**
- Instructor/Assistant Professor: Teaching responsibilities in the Teacher Education Department of the School of Education included Human Growth and Development, Foundations of Education, Classroom Management, and Curriculum and Assessment. Service work centered on course and program redesign.
- Boyertown Area School District – Boyertown, PA **2004-2012**
- Elementary School Counselor: Worked as an active member of school-wide assistance teams, implemented comprehensive developmental guidance program, facilitated special placements for students, consulted with teachers and parents, and provided professional development for faculty, staff, and administration.
 - Learning Support Teacher: Designed and implemented Individual Education Plans and Behavior Intervention Plans, participated in a fully inclusive class structure, was highly instrumental in Response to Instruction and Intervention model, and consulted with teachers regarding instructional adaptation.
- Boyertown Area School District – Boyertown, PA **1992-2004**
- Instructional Support Teacher: Delivered K – 6 instruction in fully inclusive setting, facilitated development and validation of school-wide Instructional Support Team, and participated in Instructional Support model training.

- Boyertown Area School District – Boyertown, PA 1987-1992
- Classroom Teacher Grades 7 – 9: Designed and implemented Individual Education Plans, taught math, language arts, science, and social studies in a self-contained setting, and supervised instructional aides.

- The Pathway School – Audubon, PA 1986-1987
- Classroom Teacher: Taught in a self-contained classroom for emotionally disturbed children in an approved private school setting.

Additional Study

- November Learning: Building Learning Community Workshops
2013
- Post-Master’s Advanced Counseling Seminar (Villanova University)
2007

Service

- The College of William and Mary – Williamsburg, VA 2013-2016
- Graduate Assistant: Participated in research and development of new teacher leadership assessment, conducted national research, assisted in editing and revision of books and book chapters, developed and published study guides/resources, and organized large professional development activities.
 - Research Team: Collaborated with a research team to develop, test, and pilot the Vibrant Schools Scale, a re-conceptualization of school climate assessment.
 - Copy Editor: As a member of the editorial board for the William and Mary Educational Journal, I reviewed and edited student submissions for a student-led professional journal.

- Parent Educational Advocacy Training Center – Falls Church, VA 2013 – 2016

Board President: PEATC serves as Virginia’s Parent Training and Information Center. From 2013 to 2015, I served both as a board member, and as board president, overseeing the non-profit’s first strategic planning initiative.

CONFERENCE PRESENTATIONS

- 2016 Linda Feldstein, Teacher Self-Efficacy and Implicit Theories of Intelligence: Implications for Novice Teacher Retention (25th Annual Consortium for Research on Educational Assessment and Teaching Effectiveness (CREATE) Annual Conference, Louisville, KY, September, 2016)
- 2015 Davis Clement, Linda Feldstein, Marquita Hockaday, Megan Tschannen-Moran, “Beyond School Climate: Development and Analysis of the Vibrant Schools

- Scale,” (To be presented at the 29th Annual University Council for Educational Administration (UCEA): Annual Conference, San Diego, CA, November 2015)
- 2015 Linda Feldstein, Davis Clement, Marquita Hockaday, Megan Tschannen-Moran, “Gauging Vibrant Schools,” (24th Annual Consortium for Research on Educational Assessment and Teaching Effectiveness (CREATE) Annual Conference, Charleston, SC, October, 2015)

RESEARCH IN PROGRESS

Vibrant Schools Research: Based on a theoretical framework that draws upon themes from positive psychology, the theory of positive deviance, and design thinking, this survey development project seeks to reframe and assess school climate as the presence of specific positive attributes such as curiosity, empathy, humor, collaboration, and agency.

WORKSHOPS

- 2010 Linda Feldstein, “Leadership and Resiliency Workshop,” (55th Annual Pennsylvania School Counselors Association Conference, Hershey, PA)
- 2010 Linda Feldstein, “School Climate and Cultural Competency Workshop,” (Boyertown Area School District)
- 2009 Linda Feldstein, “Conflict Resolution and Resiliency Workshop,” (Boyertown Area School District, Boyertown, PA)
- 2008 Linda Feldstein, “Leadership and Resiliency Workshop,” (53rd Annual Pennsylvania School Counselors Association Conference, Hershey, PA)

PROFESSIONAL AFFILIATIONS

American Educational Research Association (AERA)
Association for Supervision and Curriculum Development (ASCD)
Consortium for Research on Educational Assessment and Teaching Effectiveness (CREATE)